



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

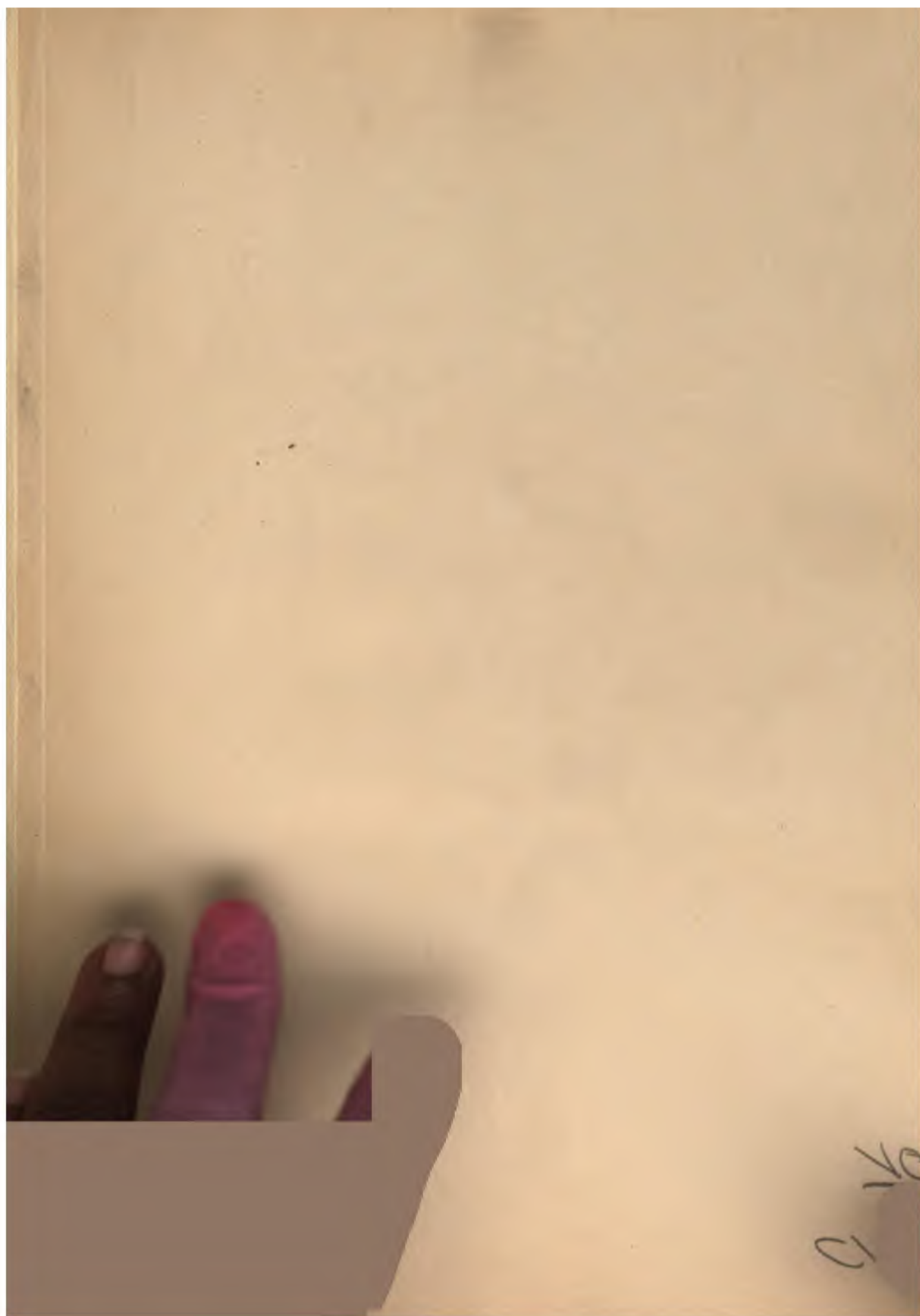
About Google Book Search

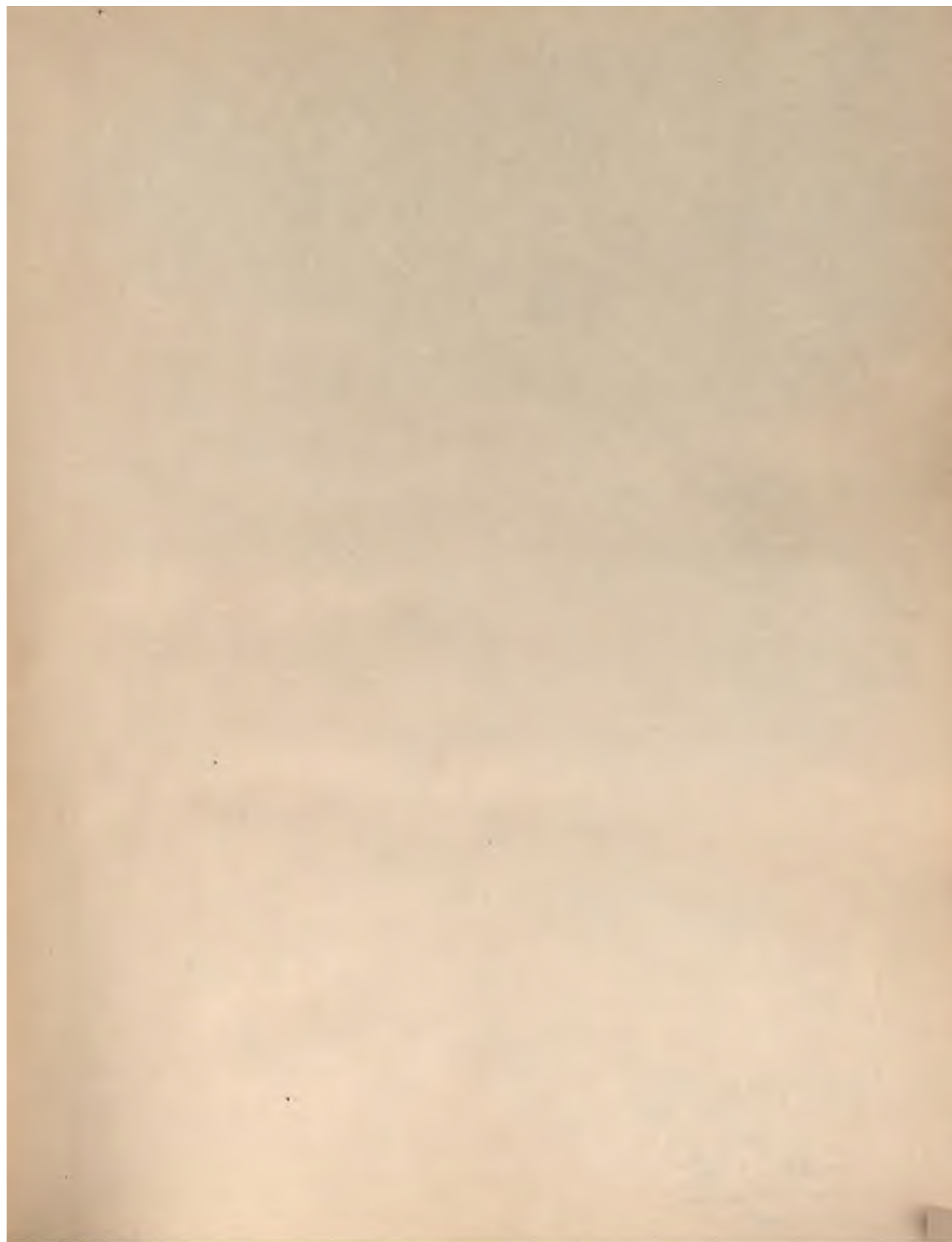
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



3 3433 06274115 6







1000
100A
x

THE
CHEMICAL TRADE
JOURNAL:

A WEEKLY NEWSPAPER DEVOTED TO

The Commercial Aspect of the Chemical and Allied Industries.

EDITED BY

GEORGE E. DAVIS,

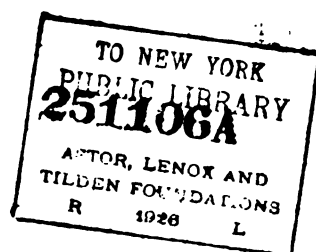
FORMERLY ONE OF HER MAJESTY'S INSPECTORS OF ALKALI WORKS
CHEMICAL ENGINEER AND CONSULTING CHEMIST

VOLUME XX.

[JANUARY TO JUNE, 1897.]

MANCHESTER:
DAVIS BROS., 32, BLACKFRIARS STREET.

1897.



MANCHESTER:

PRINTED BY DAVIS BROS., 32, BLACKFRIARS STREET.

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

No. 502.

SATURDAY, JANUARY 2, 1897.

Vol. XX.

Contents.

	PAGE		PAGE
The Past, Present and Future	1	Tar and Ammonia Products	8
Society of Chemical Industry	3	Report on Manure Material	8
The Patent List	4	Miscellaneous Chemical Market	9
Abstracts of Latest Complete Specifi- fications	4	The Metal Markets	9
The Scottish Mineral Oil Industry During 1896	5	Liverpool Oil and Colour Market	9
Agricultural Insects of 1896	5	Tyne Chemical Report	10
A Spontaneous Combustion Inquiry	6	West of Scotland Chemicals	10
Correspondence	7	New Companies	10
Trade Notes	8	Imports	10
		Exports	13
		Prices Current	10

LATE ADVERTISEMENT.

TENDER.

TO MANUFACTURING CHEMISTS AND OTHERS.

THE Board of Works for the Wandsworth District are prepared to receive TENDERS for the supply of Carbolic Acid Powders and other Disinfectants for One, Two, or Three Years, at the option of the Board, from the 25th March next. The Specification and Form of Tender may be obtained at these offices between the hours of Ten and Four (Saturdays Ten till Two).

Tenders are to be delivered at these offices under seal, endorsed "Tender for Disinfectants," on or before Tuesday, the 19th day of January instant, and must contain the names and addresses of two responsible persons to join the contractor in a contract for the due execution thereof.

No Tender will be received unless it is made upon one of the printed forms issued from these offices. The Board do not pledge themselves to accept the lowest or any Tender.

By order of the Board of Works for the Wandsworth District.

HENRY GEORGE HILLS,
Clerk to the Board.

East Hill, Wandsworth, S.W.,
1st January, 1897.

Notices.

All communications for the *Chemical Trade Journal* should be addressed, and Cheques and Post Office Orders made payable to—
DAYIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—
"Expert, Manchester."

NATIONAL TELEPHONE 3060.

The Terms of Subscription, commencing at any date, to the *Chemical Trade Journal*,—payable in advance,—including postage to any part of the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

3 Words and under	2s. 6d. per insertion.
Each additional 10 words	0s. 5d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

30 Words and under	1s. 6d. per insertion.
Each additional 10 words	0s. 3d.

Trade Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

THE PAST, PRESENT, AND FUTURE.

COMPARED with the last eight years 1896 has not been so bad, and it would be ungracious to speak too severely of the past year, when it has at least brought the hope of a brighter future. After all, this is no mean gift, as a plucky and cheerful start is alone enough to discount misfortune to a considerable extent. The times have been trying in several ways, but there has been a lack of those whole disconcerting upheavals in labour circles, and, consequently, a steadier and healthier tone in commercial circles. Among business men it is always a long interval from the comparative to the superlative, and when things are "better" they have to improve phenomenally before they are at their "best." Considering this, it would scarcely be rash to say that, generally speaking, the past year has been satisfactory, if not positively good.

THE ALKALI TRADE

of the year has not been marked by many disturbing features, the chief noteworthy fact being the gradual fall in prices of the principal products. Starting with January of the year bleaching powder of good brands was fetching on an average £6. 12s. 6d., but it gradually sank to £6. 10s. 6d. by March, £6. 7s. 6d. by June, £6. 3s. 9d. by September, and at the present moment stands at a trifle over six pounds sterling.

Caustic soda has also declined in value, and fallen to a price at which it certainly does not pay the smaller makers to produce. Moreover sales have been made on contracts for the whole of 1897 at very low rates indeed. These low prices are the result of a tribal warfare, which has been going on for some time, and though peace has been patched up at last it is by no means looked upon as permanent, and is only one result of the triangular duel between the great companies and an outsider. The outlook for salt-cake is much brighter, and the position may change again for the better before the year is out, owing to a lessened production.

Bicarbonate of soda is about the only product in the alkali trade that has maintained its price, and this is a big trade now.

Sulphuric acid has shown a turn for the better. It is only a few years since we were deluged with enquiries, "What can we do with our acid?" A maker's surplus could not be sold then at any price, but to-day the cry is, "Where can we purchase acid?" which query will no doubt be solved by the extension of existing installations, if not by the erection of totally new plants. The vitriol trade will never more be a fancy trade as it once was, but there is a market of considerable dimensions in many localities where the cost of railway carriage is not too great. It has now been amply demonstrated that sulphuric acid of 149° Tw. can be made at the works for a trifle over 16s. per ton, and at this price we should have no fear of foreign rivals.

As to new processes in the heavy chemicals trade the year 1896 may be said to have been prolific, the Lœwig caustic

soda process, as adapted by Messrs. Brunner, Mond and Co.; the new chlorate of soda process, as worked by Messrs. Bowman, Thompson, and Co.; the nitric acid chlorine process, as worked by Messrs. Sadler and Co.; and the Castner-Kellner electrolytic process, for making both bleach and caustic soda, have all of them been put into large scale operation during the year, though the last named cannot as yet be said to have established its *raison d'être*.

Although the year is entered upon with a lower scale of prices than has existed during the past year, manufacturers will have some compensation, as fuel has also receded in price, and contracts have been made covering the whole of 1897 at 10d. to 15d. less than was paid during 1896; at the same time other raw materials remain at nearly the same level.

On the whole the year does not augur badly, but it will be a trying one for those who have antiquated plant and second-rate supervision. The margin for profit depends entirely upon getting the maximum yield from the raw materials employed, and in reducing the general expenses of the establishment to a figure that can be squeezed no more.

TAR AND AMMONIA PRODUCTS.

It is seldom a pleasant task to review this section of the chemical industry, owing to the fact that as a general rule either one branch or the other has had a chequered existence during the twelve months under consideration. The past year has been no exception. Taking one thing with another matters have not been so bad with tar products, but as regards sulphate of ammonia the year has been a record one—a record of all that is bad and unfortunate.

To revert to the tar products, of course there are those who will be inclined to think that business might have been much better, and it would be a remarkable year in which some one did not think so. Generally speaking, half the parties affected always take opposite views, as when it is a good time for the producer, it is not all roses with the consumer, and *vice versa*. In 1896, however, fortune seems to have distributed her favours fairly evenly. Under the fostering care of the Tar Products Syndicate, benzols have on the whole ruled higher than in the previous year, 90's opening at 2s. 3d. to touch 2s. in March. Then rising gradually with certain fluctuations, 2s. 4½d. was about the price in June, while later on 3s. 9d. was reached, the year closing quiet at about 2s. 8d. to 2s. 10d. Crude naptha was fairly steady during the early months of the year, but in the course of March to May the price fell from 10d. to 9d., and even 8d. Thence forward this article kept in closer and more normal touch with benzols, rising to 1s. 3d. and even higher, ending the year at 1s. 1d. or thereabouts. Solvent has been much more constant, opening at 1s. 6d. and keeping about the same during the first quarter of the year. In May there was a decline to 1s. 3d., but towards the close 1s. 6d. to 1s. 7d. was the nearest value. Carbollic acids have improved. Crystals opening at 6½d. touched 8½d. in March, and settled to the intermediate value of 7½d. at the close. Crude (60%) did much the same, starting at 1s. 9d., rising to 2s. 3d. in March and ending the year at 2s. 1d.

To record all the fluctuations of sulphate would be a tiring and distasteful task, but the following salient features concerning London prices must be noted. The first month of the year was the best, and in it the highest price of £8. 12s. 6d. was reached, never to be met with again in the course of the ensuing eleven months. Nothing notable then occurred until March, when a sharp decline took place, and by the end of the month £8. 2s. 6d. was reached, to be followed in April by

£8. During the succeeding three months values hovered around this price, £8 3s. 9d. being reached once. In the course of August and September the dwindling away continued, so that October opened at £7. 12s. 6d. Then the "frost" set in, and hitherto unheard of prices began to be recorded until as low as £7. 5s. was reached while, in an exceptional instance, a bare £7. per ton was accepted. This seems to have been the rockbottom, as soon after prices began to mend a little, and in November £8. 2s. 6d. was once more the market value which, by the close of December, had again shrunk to £7. 13s. 9d. Taking all things into consideration, however, we think it is no rash prophecy to say that there is reason to hope for better times in the present year—as far as makers are concerned at all events.

THE MANURE TRADE.

The depressed state of agriculture has undoubtedly done much to check the tide of prosperity in this trade, but for all that, the trials of adversity as well as the ever-increasing spread of scientific methods of cultivation, are tending to the ultimate advancement of the fertiliser industry. The year has not been very full of promise as regards prices, but this is a point to which we shall not refer at length here, as it is always dealt with in detail in the review of the manure trade which appears in these columns every year. Our preceding remarks anent sulphate, however, confirm this statement. Nitrate of soda has been cheap, but the effects of the combine have apparently been largely counteracted by the abnormally low price of sulphate, which has rendered any serious advance well-nigh impossible. Basic slags have been steadily winning their way to favour, while superphosphates have been cheap and seemingly well patronised. Guanos are once more making a bid for more extended use, and now that the price has been so materially reduced there is some likelihood of success in this direction. They have the advantage of being virtually a complete manure, and therefore of service to those farmers who are not yet educated up to fertilizing specialities. On the whole the prospect for this class of fertilizer, and also phosphatic and potash products is promising. Nitrogenous materials have been threatened by the trials of nitragin, but so far it has proved a menace of the feeblest order. There are more serious difficulties than these to be coped with, as the course of sulphate has shown, and they need prompt handling. Touching that off-shoot, the insecticide, etc., trade, sulphate of copper has been cheaper than ever, gradually declining from £19. 10s. and £19. in March to £18. in November. There are those who should be thankful for this, even if there are many others who are not. Finally, we should mention the fact that the Phospho Guano Company has found it necessary to transfer its head-quarters from Seacombe to France, for reasons the trade will do well to look into.

OIL, PAINT, COLOUR, AND VARNISH MANUFACTURERS

have had a fairly good all-round year, the paint manufacturers if anything having fared better than the seed crushers, as the year opened well, and in February business was good for the time of year. The open weather that was experienced in March proved beneficial, causing makers to be decidedly busy. May also was an exceptionally busy month, in conjunction with which prices happily continued firm, so that work was both plentiful and profitable. During August and September a slight reaction set in, and business flagged somewhat, this deterioration being aggravated by the bad weather in October, when things certainly slackened and orders became scarce. In November the home trade naturally

was quiet, but the export trade was fairly good, while the advent of the last month of the year found the export trade so brisk as to necessitate overtime being worked in a good many cases. Manufacturers were also busied securing contracts for the present year, for which competition was undoubtedly keen. The outlook, however, is not such as to cause more anxiety than is common to business in any form. The oil trade was somewhat handicapped by a very quiet opening. By April the demand was good, but concurrently prices began to fall, May and June were more or less unsatisfactory, and business was decidedly flat up to the end of August. With September, however, prices began to harden a little and the demand improved. In October linseed and cottonseed oils picked up in price, and ere November was in business was better, prices being well maintained. Towards the end of the month however the market once more began to lag. With December, however, things again began to look up. The low prices for cottonseed oil caused an unexpectedly brisk demand from Marseilles, while the home requirements were better than was anticipated. On the whole, therefore, the year closed firm and active.

GLASS, BRICK, AND TILE MANUFACTURERS.

Things have been considerably upset by labour disputes in the glass trade, and in the Stourbridge district the Union officials inflicted a severe lesson on the men, who were unfortunately compelled to follow their lead. We wish the pinch of want that many have, doubtless, since felt could be conveyed to those who caused it. To let well alone is sound counsel, but this, such officials never seem able to do. There is something intensely humorous in the latest attitude of the Unionist advisers. For years they have compelled masters willy-nilly to employ only Union labour, and claimed their right to do so. Yet they are now first hurt, then agrieved, and, finally, hot with indignation because the masters are beginning to choose non-union labour entirely in preference to the vexatious and vacillating thralldom of the Union. If it was right and just to compel employers to use Union labour, where is the injustice of a man having a distaste for that particular form of labour, and so preferring to use the other kind entirely? If it was the right and duty of the Union to hunt down and insist on the discharge of every non-union worker in union shops, what plaint can these exorcists have against employers who politely decline to admit them into non-union communities?

Although the price of salt-cake has advanced, and is likely to do, there seems to be a better outlook in the glass trade than there was at the same time in 1896. Coal is moreover not quite such an important factor, as gaseous fuel has been considerably extended in its application to the trade during the year, and it is all these evidences of advancement that make the prospect for the future sounder than when it has to be faced without a single new rung in the ladder of progress. Things have been much about the same with the brick and tile trades as far as their connection with the chemical trade is concerned. There has been, perhaps, a little more competition than heretofore, owing to the success which enamelled plant has met with, and which has been determinedly introduced here of late. There would appear to be plenty of go however behind the chemical brick and tile industry, so that the future is not so formidable as might be thought. Last but not least we come to

OUR READERS IN GENERAL.

The ups and downs of the textile trade have naturally affected the calico printers, dyers, bleachers, and drysalers but considering the threatening attitude of twelve months

ago the troubles that have come have been weathered fairly well. Things have been rather better with soap and candle manufacturers, and many new products have made their appearance. These trades are certainly being fermented by the leaven of activity, improvement in every direction is rife, and apparently is not barren.

Our efforts to assist with all information that is relevant to the chemical and allied industries have not been relaxed, and judging by the many tokens of appreciation our Abstracts of Patent Specifications have elicited we shall do everything we can to keep them as comprehensive and exhaustive as possible. They constitute a feature that no one person in the chemical trade and its many branches can afford to neglect, especially as they appear week by week instead of monthly. Among other matters mention should be made of the *Chemical Trade Journal* Rules for the Prevention and Treatment of Gaseous Poisoning. By identifying itself with the amelioration of this danger the *Journal* has proved itself a friend as well as a servant, and therefore is entitled to hope for the co-operation of its readers in making familiar to all the aid it has rendered. Finally, we once more have the pleasure of wishing our readers, both individually and collectively, whether home or foreign,

A HAPPY AND PROSPEROUS 1897.

SOCIETY OF CHEMICAL INDUSTRY.

SCOTTISH SECTION.

The second meeting of the new session took place in the Philosophical Institution, 4, Queen-street, Edinburgh, on the evening of Tuesday, December 22. Mr. John Laing presided. The business of the meeting was the reading of a paper on "The Removal of Organic Matter from Potable Waters," by Dr. J. B. Readman, Edinburgh. Some time ago the County Council of West Lothian constructed a dam on the Forrestfield Burn, for the supply of the Bathgate district of the county. The dam is situated nearly midway between Edinburgh and Glasgow, about where Lanarkshire and West Lothian border each other, and in rather a mossy and moorland tract of country. The water drawn from the reservoir proved, especially during certain conditions of weather, to contain much organic matter in suspension, and was then of a decidedly forbidding character. The authorities called in the counsel of Dr. Readman, public analyst, and he, after fully examining the samples of the dam water sent to him, advised them to try the removal of these organic matters by artificial means. Doing so was not a new operation, but there was novelty here in the circumstance that it applied to a comparatively large service reservoir, which continued to supply its area of population all the time the experiments were going on. In the laboratory Dr. Readman had made sure that the addition of about one pound weight of alum to every 2,000 gallons would banish very nearly all peaty and colouring matter, and do so within the space of one night. In natural treatment on the spot (as Dr. Readman detailed in his paper) the alum—in the form of alum cake containing 14 per cent. of uncombined sulphuric acid—was first applied in rock to the burn water, before it entered the reservoir. Later, the treatment was extended to the body of the stored water itself, by means of a navigable raft. The cure was patiently persevered in, and a month after the commencement the quality of the water was manifestly improved. In two months—that is to say up to May 30, 1896—the water drawn off from the dam was found to be quite equal in quality to that supplied to the city of Edinburgh. The treatment was stopped at this date, and of course the water gradually thereafter, though slowly, returned to its normal condition. The feeding burn, it appears, drains a considerable extent of mossy area, which in periods of heavy rains send off much organic matter; and on the whole, it would seem that the site of the dam had not originally been well chosen. Dr. Readman has pointed out to the County Council authorities that continued treatment is necessary and feasible; his calculation being that about 5 per cent. of alum per day, at a cost of 7s. 6d., or with attendance, say 10s. would suffice. During periods of low rainfall the application might be temporarily suspended. About 1,000,000 gallons are drawn off daily, and he reckons that £150 yearly would cover the outlay. Dr. Readman's paper was listened to with great interest, and a cordial vote of thanks was passed. It contained analyses and figures, which will be acceptable to readers after the paper appears fully in the *Journal* of the society.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Apparatus for Washing Woven Piece Goods. W. Hadfield, J. J. Sumner, and H. Hadfield. 28,557. December 14.
 Apparatus for the Continuous Bleaching and Washing of Dyed Goods. W. Hadfield, J. J. Sumner, and H. Hadfield. 28,553. December 14.
 Brown Colouring Matters Containing Sulphur. W. H. Claus and A. Rée. 28,557. December 14.
 Cooler for Petroleum Motors. H. Lepage. 28,583. December 14.
 Producing a Mixture of Air and Water Vapour for Gas Producers. L. Mond. 28,538. December 14.
 Electric Recorder of the Relation of Oxygen and Nitrogen in Mines. L. Cohn. 28,602. December 14.
 Electric Signalling Apparatus for Fire-Damp. L. Cohn. 28,610. December 14.
 Decolourizing Palm Oil. J. L. Garle and C. C. Frye. 28,682. December 15.
 Production of Ozone. E. Herz. 28,692. December 15.
 Process and Apparatus for Purifying Alcohol, etc. C. Killing. 28,713. December 15.
 Extraction of Gold and Silver from Ores. J. B. Torres. 28,714. December 15.
 Producing Hydrogen Gas and Apparatus therefor. R. G. Leventhorpe. 28,721. December 15.
 Purifying Aluminium and Apparatus therefor. P. E. Placet. 28,727. December 15.
 Improved Lining for Crucibles, etc. P. E. Placet. 28,728. December 15.
 Mechanical Water Purifiers. H. B. Wright. 28,747. December 15.
 Improved Furnace Door for Smoke and Soot Consuming and Fuel Economising. H. A. Garrett. 28,746. December 15.
 Improvements in Metal Pickling Cradles. J. L. Morris and J. Williams. 28,762. December 15.
 Improved Process and Apparatus for Purifying Saccharine and other Solutions. J. V. Johnson. 28,763. December 15.
 Apparatus for the Electrolysis of Zinc Chloride. F. Hurter and the United Alkali Co., Ltd. 28,746. December 15.
 Apparatus for Treating Dyeworks Effluents. R. J. Inston and E. Ramsden. 28,840. December 16.
 Explosives. G. Kynoch and Co. and A. T. Cocking. 28,829. December 16.
 Manufacture of Nitroglycerine. G. Kynoch and Co. and A. T. Cocking. 28,890. December 16.
 Purifying and Concentrating Sulphuric Acid partly applicable to Manufacture of Nitric Acid. J. Kynoch and Co. and A. T. Cocking. 28,891. December 16.
 Sewage Treatment Apparatus. A. P. J. Cotterell. 28,918. December 17.
 Dyeing with Aniline Black. J. C. Hamer and J. Haslam. 28,984. December 17.
 Incinerating Garbage and Recovering Ammonia. J. F. G. de Bonardi. 29,009. December 17.
 Manufacture of Chlorine. E. J. Hunt and E. F. Watson. 29,056. December 18.
 Manufacture of Red Oxide from Galvanisers' Waste Liquors and other forms of Iron Chloride. T. T. Sill. 29,090. December 18.
 Improved Manufacture of Cement. Petrifite, Ltd. 29,212. December 19.
 Method and Apparatus for Water Purification. J. S. MacDougall. 29,223. December 19.
 Mechanical Filters. J. S. MacDougall. 29,224. December 19.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

These abstracts are specially prepared for the Chemical Trade Journal, and ALL RIGHTS of publication are RESERVED. This is the earliest series of abstracts of Chemical and allied patents accessible to the public.

Improvements Relating to the Extraction of Gold and other Metals from Ores, Tailings, Slimes, and other Compounds containing the same, to Apparatus therefor, and to the Preparation of Solvents for Use in such Extraction. H. R. Lewis, 7, Drapers' Gardens, London, and C. Gelsdorp, 211, Jubilee-terrace, Clayton, Manchester. Eng. Pat., 23,052. Dec. 2, 1895.

This is a very voluminous patent, dealing in full with the objects set forth in the title. The main points may be summarised thus:—the gold is extracted by means of hypochlorous acid, hypobromous acid, or a mixture of the two. Dilute solutions of hypochlorous acid can, it is claimed, be used to greater advantage than chlorine gas, and it is quicker in its action than cyanide. The ores in a state of fine division are therefore treated with a solution of the acid, bleaching powder, &c. Five methods of leaching are described. The solution so obtained is

treated to precipitate the gold, H_2S , SO_2 , or other suitable compounds being employed. The precipitate is treated with sulphuric acid to leave the gold. The silver is thrown down with copper, the copper with zinc, and the zinc with sodium carbonate or sulphide. As an alternative the solution may be electrolysed. Four ways of preparing the hypochlorous acid are detailed, and suitable plant is described and illustrated by six figures. The patent covers ten claims.

Improvements in the Manufacture or Production Electrolytically of Coatings Composed of Oxides of the Earth Metals. R. Langhans, 12, B. Elizabethstrasse, Berlin. Eng. Pat., 23,137. Dec. 3, 1895.

The patent refers to the electrolytical coating of incandescent mantels. The former difficulties are surmounted by using "basic" earth-salts of the rare metals. That is to say, neutral earth-salts that are capable of dissolving the hydroxides of the metals of which they are composed, as well as the hydroxides of other earthy and alkaline-earth metals. Several ways of preparing a solution of these "basic" earth-salts are described. Using such a solution and a current of the specified density, a perfectly adherent deposit is obtained on the hoods that are immersed in the solution and form the negative electrodes. There is one diagram.

Improvements in Apparatus for Drying Superphosphates and the like.

J. Y. Johnson, 47, Lincoln's Inn Fields, London (communicated by the Verein Chemische Fab., Mannheim). Eng. Pat., 22,713. Nov. 27, 1895.

In a shaft-like furnace or kiln a number of sloping perforated trays are placed which can be oscillated by an external mechanical contrivance. Towards the bottom these trays are supplanted by fixed sloping guides or shoots which direct the dried material to the exit. The kiln can be heated direct by fire or steam coils, or waste flue gases can be used. The novel feature is the construction of the trays. In addition to being perforated they are provided on the upper side with a number of spikes which form a harrow as it were. As the material is fed through the hopper the finer particles fall through the perforations and are dried by the ascending gases. The lumps are retained by the spikes and are jogged from tray to tray, being gradually broken up as they dry by the rocking and falling. Thus only fine and well-dried material reaches the exit. There are two drawings.

Improvements in Electrical Gas-Reaction Apparatus. A. A. Naville, P. A. Guye, and C. E. Guye, all of 20, Rue Candolle Geneva. Eng. Pat., 1,401. Jan. 20, 1896.

The apparatus aims at enabling gases to be efficiently exposed to the action of an electric current. It consists of a series of insulated metal tubes, through which the gases are passed, which are interposed between two electrodes, connected with a source of electricity, and so arranged that the whole mass of the gases will be compelled to pass in close proximity to the spark produced between the electrodes and the insulated tubes. Seven figures illustrate the apparatus suggested.

An Improved Compound for Preventing Incrustation and Corrosion in Steam and other Hot Water Boilers. W. J. Tranter, Swan Bridge, Great Bridge, Tipton, and O. Howell, Tipton Engineering Works, Tipton. Eng. Pat., 2,495. Feb. 4, 1896.

There is nothing very original in this patent, which is very comprehensive. The compound used is solid, and consists essentially of Irish moss, gambier cutch, dextrine, soda ash, soda crystals, sugar, caustic potash, whistone, and tartaric acid in certain proportions, nearly half being Irish moss. To this preparation paraffin molley, ammonia, petroleum, bicarbonate of soda, phosphate of soda, salt or starch may be added according to the water to be treated.

MANURIAL EXPERIMENTS IN STAFFORDSHIRE.—A report has just been issued upon the manurial experiments for the season 1896 carried out under the direction of the Technical Instruction Committee of the Staffordshire County Council. Experiments have now been carried on for four years at Longnor, Reapsmoor, Penn, and Wheaton Aston. It is not, the report states, easy to draw very definite conclusions from the results of the experiments during the past season, as some of the effects observed appear to contradict what was noticed in the previous experiments. This is due in great part to the exceptionally dry spring, owing to which all green crops suffered severely. The dry weather interfered with full advantage being obtained from the artificial manures, and favoured plots, such as those dressed with farmyard manures, in which humus was abundant. The crops in the north of the county were also heavier than those in the south, as owing to the later harvest, they derived more benefit from the summer rains. In all cases the manured plots gave a larger yield than where no manure was used.

THE SCOTTISH MINERAL OIL INDUSTRY DURING 1896.

IT will be remembered that the Scotch-American solid paraffin combine was in part renewed during January, 1895, but that it was sickly and desperately insincere from the beginning. In our review of that year, which appeared in the *Journal* of issue January 11th, 1896, it was indicated that meetings had just been called for London to see whether there was "any possibility of the leaky contrivance being tinkered up again." Well, these meetings were held, but they were of no avail in that direction. Nominally at that time solid paraffins (scale and wax) were on a range of from 1½d. to 2½d. per lb; not bad figures if there had been anything genuine about them, but unfortunately there was not ultimately, either on the one side or the other. The only result of the London January meetings was to demonstrate more clearly the lost condition of the agreement, and, almost immediately after, the pretence of agreement was openly abandoned. One needful Scotch company, which found itself hampered by this fraud of an understanding, without deriving the slightest benefit by way of set-off, was the first to announce that it would have no more of it. It would put its scale and wax on the market openly, and let these articles take their chance as to price. This action was followed directly by the Pumpherson, one of the companies of the best standing, and thereupon what remained of the fabric gave way all along the line. The nominal figures attached to the solid paraffins up to this had been as follows:—Hard scale, 1½d., and soft scale, 1½d. to 1¾d. per lb; wax 120° semi-refined, 2½d. to 2¾d. per lb. On the break-up in January, the Scotch producers came down by ¾d. all along these various sorts, but there was no obligation to stop at that reduction, there being no longer any pretence at agreement, the Americans being altogether out of it, and breathing more of war-to-the-knife on account of flash-point reprisals than of any further amicable bargaining. As the year proceeded, there were increased difficulties in the direction of the paraffin candle manufacture, which is the chief outlet for these solid paraffins. The Candle Association had fallen through with the other, and the market became pressed with the heavy importations of wax from America, offered at lower quotations. The Scotch makers found that low as these solid paraffins had already been brought, they had by force of circumstances to be brought lower still. About September the nominal figures became as follows:—Hard scale, 1½d. to 1¾d.; soft scale, 1½d. to 1¾d.; wax 120° semi-refined, 1½d. to 2½d. These are figures much too lowered with regard to the remunerative consideration, but there has been no remedy, and they still rule—nominally—for it is by no means certain that the needier makers never have recourse to forced dealing at still lower figures in order to come by money in hand for urgent necessities. Candles suffer in like manner, and it is a fact that so low as 2s. 6d. per dozen pounds of the common sort has been taken, though not habitually by any maker. The ordinary price is 2s. 8d. to 2s. 9d., and much too low at that for healthy business.

Burning oil during 1895 took its leap from a low unremunerative figure to a good paying one, and though there was some paring away from the top price the close of that year left the article healthy at from 6½d. to 7d. per gallon, delivered in Scotland at cities and large towns. Orders from outlying places cost a little more. Sales to England were negotiated at what the makers chose to take for their surplus oil, this representing generally a reduction of about a halfpenny. Good prices these, as things had been going, but hardly retainable owing to the slightly slipping condition of the market, and so in May the makers took off a halfpenny to 6½d.-6¾d. for the Scotch sales. This was confirmed in August when fixing for the supply of the approaching winter season, but there has since been a feeling of insecurity as to the foreign prices, which shows signs of coming further down, and as to the loyalty of some of the makers, and further concessions in the shape of discounts had to be made. With it all the article is healthy as compared to the weakness of two years ago, and this health is sorely needed here, for some of the other products are very sickly. Lubricants form a gratifying exception, however, having been slowly but steadily rising with the recovery of trade. At the close 865° oil fetches £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890-805° £6. 10s. to £7. these figures representing a gain of about 10s. a ton for the year. The sickly members are scale and wax, as shown above, and more particularly sulphate of ammonia, which is a large and important output with these factories. This once lucrative, but now (for the time at least) decadent, article fell all the year with few variations, till in October it got down to below £7. per ton f.o.b. Leith prompt. It is better than that now, but not very much better, and makers are greatly exercised over its condition. If it had been low like that when burning oil was at its lowest the industry would have been swept away. The only other article of the industry needing mention is naphtha, which has done well as to value 7d. to 7½d. per gallon, but its output is too small to affect the financial returns much.

The bulk of these returns are made public in the spring of the year. During 1895 these spring reckonings were productive of dividends in

two instances only, the Broxburn Company and the Pumpherson Company each paying 5%. For two years previously there had been nothing. The spring of 1896 showed an improvement. The Broxburn increased its figure to 7½%; the Pumpherson repeated its 5% of the previous year; the Oakbank also resumed payment of dividend with 5%; Young's Paraffin and Mineral Oil Company had a considerable balance to the good after discharging current burdens, but this amount (over £20,000) was not divided, only carried forward meanwhile, because of a process of consolidation of loans and debentures which the directors had undertaken and have now in hand; the Linlithgow Company did better, but not to the mark of a balance large enough to warrant any dividend; the Holmes Company, of small scope—crude oil and sulphate of ammonia only, made a loss on the year, which, however, the balance from 1895 more than cleared. Two companies made up books in the fall, contrary to the general practice, and of these one, the Dalmeny (small, crude oil and ammonia only), again paid 20%, while the other, the Clippens (large, refining), had a small sum to the good, which slightly reduced the debit balance some time standing on the books. On the whole, the position, as judged by the returns, has showed an improvement, but concurrently adverse influences have been at work, which will leave their mark on the balancings of 1897. Burning oil, though still at a paying figure, is not so assured of keeping its hold, and if it were to go again there would be only one considerable product left in which any substance remained, namely, lubricating oil. Wages disturbances have not been entirely absent, but there has been nothing violent, and these matters at the close of the year are quiescent. Anxiety is felt on the score of fuel prices, and certainly the industry cannot stand having them very much increased just now. The prospect also of interruption of dispatch of products, owing to seaport and railway impediments (strikes), was the reverse of welcomed, but so far these influences have not weighed heavily. During 1896 keen attention was paid by the Scotch oil circles to the progress of the Government petroleum inquiry, and this will be continued when that inquiry is resumed. The chances of flash-point reformation in the future are generally held to have improved somewhat, but it is not believed that Parliamentary action in the straight direction of a change of law is other than remote. The general prospect for the industry over 1897 is somewhat dubious. Granted a continuance of activity in the trade of the world, and there should be no immediate fear for this particular Scotch staple, but of this there is no certainty.

AGRICULTURAL INSECTS OF 1896.

THE following summary of the attacks of dangerous insects during last year has been communicated to the *Times* by Miss E. A. Ormerod, F.E.S.—At the turn of each year it appears to be of some interest agriculturally to record what the chief points of the insect crop attacks of the season have been, and at present perhaps more than ordinarily so, from the early part of the year now passed away, and that of 1895, having been so widely different in temperature.

January and February of 1895 will be remembered for the widespread presence of abnormally low temperatures, especially during February, so that for long it was impossible to get the plough into the frost-bound ground, and hopes were widely expressed of a consequent immunity from crop insect pests, which, however, did not by any means prove to be the case.

The past year (1896), on the contrary, was ushered in by an open season; as a general thing allowing both land and water grubs full scope for their activity, but the result, however, in the amount of the two seasons' appearances have been very similar. In both years we have had much attack of various kinds, but no general devastation over the whole country, and while at a rough estimate the kinds of British insects regarding which I was consulted in 1895 were about 70, in the past year they were also little above the same number exclusive of what are called "insect allies."

Last winter, whilst land and water were both open, ravage began early. By January 23 serious damage had been done to watercress by the water grubs well known as "Caddis worms," and on the following day I had report of severe mischief at the roots of strawberries from the caterpillars of the small swift moth (*Hepialus Lupulinus*), of which the larval life being from autumn to spring usually secures us from much of its powers of ravage which are enormous when actively at work.

The two great attacks of the year were—firstly, "leafage moth caterpillars" of different kinds, which devastated miles of trees in various parts of the country, till the foliage was reported in May as looking as if a fire had passed over it, or the trees as bare as if it was winter; secondly, the "surface caterpillars" of various kinds of *Noctua* moths. These, which are best known as "turnip grubs," appeared at mangolds so early in the summer, and also in such great numbers and in such young condition, in which their colour differs from that of their advanced state, that they were doubted about locally as possibly being a

new attack. Reports of their injuries to various kinds of vegetables continued from about July 5 until October 30, when they were noticed as doing great damage to the roots of young gorse being grown for coverts.

The early superabundance of the latter-named attack, and also in great part the May devastations of the former, were much aided by the "fine weather" of the latter part of April and the droughts of May affording favourable circumstances for caterpillar life and insect propagation.

Amongst other pests of turnip and cabbage, besides "surface caterpillars" and flea beetle, aphid, gall weevil, and flower beetles, &c., the caterpillars of the white cabbage and turnip butterflies extended themselves more than usual to field attacks, date of appearance lasting up to the end of September, and a further observation, which may prove of importance, is that of presence of the turnip and cabbage seed "gnat midge," the *Cecidomyia Brassicae*, of which I had specimens both in maggot and midge conditions. This attack much resembles that of the turnip seed weevil, but I am not aware of it having been recorded previously here as a crop pest. The diamond back moth was reported as only very slightly present.

Amongst corn attacks, "gout," caused by *Chlorops tentopus*, was very bad in some places, and frit fly maggots in the heart of the young growing plant also did some mischief. Corn and grass aphid showed itself to a very remarkable amount on some large areas of grass land, and chafer grubs, for the most part those of small kind known as the rose chafer, the *Phyllopertha horticola*, again last year were exceedingly destructive at grass roots, notes of their presence and of their ravages dating from February 21 to October 8. More than the usual amount of report was made of the pests of stored grain and flour as of the common granary and (so-called) rice weevils, the corn *Cucujus*, a minute reddish beetle; the granary moth and the Mediterranean mill moth, a fearful scourge in "rolling" mills, and a minute mite in fine biscuit flour, which appeared to have been imported from the Continent, and we hope was extirpated.

Hessian fly was wholly unreported. The ordinary ground pests of wireworm and daddy longlegs, which can hardly be attached to any one crop more than another (except it be grass, were, of course, present. The stem cecidomyia, the cause of "tulip-root" in oats, and of clover sickness, afforded me, through the courtesy of Mr. Clare Sewell Read, some valuable notes for my next annual report, and the discovery of this cecidomyia, the *Tylenchus devastatrix*, of which specimens were sent me, being the cause of severe and easily recognisable injury to onion bulbs, is probably the most important observation of the year.

Amongst special attacks, that of beet carrion beetle, trustworthily recorded in one locality as extended to potato leafage, is, I believe, quite new, and the enormous potato-leaf-feeding caterpillar of the death's head moth, which reaches to a length of as much as 5 in., was unusually prevalent. Earwigs were more than usually prevalent on hop leafage, and a very convenient method was discovered of clearing them at small expense. "House flies," also, which are very far from not being an agricultural coincidence, have been the subject of some good communication, and so likewise has the "small German cockroach," the "croton bug," of the U.S.A., distinguishable from our cockroach by its smaller size, yellowish colour, with brown stripes along the back, and enormous powers of multiplication, which has also been so troublesome that I have thought some notes and full illustrations of both these pests might be of interest amongst my next series of notes. Fruit insects were almost more prevalent than is usual, especially pear attacks, but space does not now allow details of these, excepting just a remark that the small red caterpillar of the *Incurvaria capitella* moth, well known to fruit growers for its injuries to the buds and very young shoots of the red currant, has now appeared also as a black currant trouble.

Amongst animal attacks besides those of the sheep nostril maggot and the horse and ox warble, which are always before us, a good deal of communication has taken place regarding the warble of the red deer. Likewise notes of the mouth and nostril bot fly of the deer, the red-bearded bot fly, *Cephenomyia rufibarbis* with a specimen of this large and beautiful rare fly have been sent me. The deer forest fly, a species differing from our common kind in the singular peculiarity of the male dropping its wings when it considers it has made a permanent settlement, has been well observed, and specimens of the above deer flies kindly contributed for illustration. Much communication has been sent throughout the year against insect pests, both home and extra British, which I have endeavoured to attend to, and hope still to continue to do so to the best of my power.

A good deal of advance has been made in serviceable attention to prevention of insect ravage, and such of the information which has been communicated to me as is now and likely to be of use I hope to bring forward at the usual time, with many new illustrations in my next annual report.

A SPONTANEOUS COMBUSTION INQUIRY.

INODOROUS FELT CRITICISED.

IN the course of a recent inquiry at the Local Marine Board Offices, Dock-street, E., into the fire which occurred on the *Glenartney* in September last, when passing through the Suez Canal, the following interesting particulars and evidence transpired:—

The *Glenartney*, one of the vessels of the Glen Line, was built at Sunderland, in 1889. Part of the cargo was loaded at Middlesbrough in July. In No. 2 hold, where the fire broke out, there were stowed some wire, iron plates, and a small quantity of Manchester goods. This hold had a ventilator forward and two aft. The loading of No. 2 hold was afterwards completed in London. There was a large tank in the hold containing cable, the tank being also filled with water. Aft this tank there were some coils of wire. At the top of the large cable tank was a smaller tank, and immediately aft was a passage leading to a manhole in the larger tank for the purpose of enabling the temperature of the water to be taken. Aft of this passage were 55 crates of inodorous felt; then a space of about a foot, and aft of that 15 casks of oil—ten olive and five colza. In the between decks there were crates and cases of paints and oils, and cases of Manchester goods. Then there was a passage leading into the lower hold, and aft of the passage casks of Portland cement. One hundred tons of coke, taken on board at Middlesbrough, was also stowed between decks, and on the top of it were oilmen's stores and other general cargo. The vessel proceeded from London on August 21, bound for Yokohama and other ports. The temperature of the water in the cable tank was taken every 24 hours, the carpenter removing a hatch for the purpose. The fourth officer took a lighted cargo lantern with him, and on no occasion entered the hold with a naked light. On the morning of September 3, the vessel being in the Suez Canal, the water in the cable tank registered the usual temperature of 68 degrees Fahrenheit, and the condition of the hold was normal. At about half-past 7 on the morning of September 4 the master's attention was called to the fact that smoke was issuing from the forward ventilator. The chief officer descended into the hold, but was unable to ascertain the seat of the fire, the smoke being very dense and pungent. The hatch was replaced and battened down, and water was played into the hold through the ventilators. At Port Said the damaged cargo was taken out of No. 2 hold. The undamaged cargo was unshipped and sent on to its destination. The theory advanced is that the fire was due to the spontaneous combustion of the inodorous felt. In 1884 the Board of Trade became aware that inodorous felt was liable to spontaneous ignition, and, having regard to the provisions of the Merchant Shipping Act of 1873 (incorporated in the Act of 1894), with reference to the shipment of dangerous goods, the principal officer of the Board of Trade in London placed himself in communication with the Felt Manufacturers' Association, who subsequently passed resolutions declaring that inodorous felt was liable to spontaneous combustion, and that, if it was supplied for shipment, notice was affixed setting out that it was liable to spontaneous combustion and calling the attention of the purchaser to the provisions of the Merchant Shipping Act in regard to dangerous goods. Inodorous felt is manufactured with jute waste, flax waste, and resin, and for the purpose of combining these ingredients the rosin must be softened by some kind of oil. At the time these resolutions were passed mineral oil was used, but that practice has been departed from. Further information has, since the casualty to the *Glenartney*, been obtained by the Board of Trade from the manufacturers. From this it appears that inodorous felt is not liable to spontaneous combustion, and in that view they are supported by Dr. Dupré, who is, however, of opinion that if the felt came in contact with oil spontaneous combustion might be set up. In these circumstances it became necessary to ascertain the condition of the casks of oil which were stowed immediately aft the inodorous felt. The vessel being slightly by the stern, her draught being 21 ft. forward and 23 ft. aft, the reasonable anticipation was that any leakage from the casks would have rolled away from the felt. According to the evidence of the stevedore, however, the casks were loaded in perfect condition, and had they been otherwise would have been refused. On their return to this country they were examined by the Board of Trade surveyor, and it was found that there was no leakage from them. Whatever suspicion might be thought to attach to the oilmen's stores was dispelled by the fact that they were packed in barrels of sawdust. Among the questions submitted by the Board of Trade are the following:—Is inodorous felt liable to spontaneous combustion? Under what conditions is inodorous felt liable to spontaneous combustion? Was the inodorous felt properly separated from the barrels of olive and colza oil? Was a naked light introduced into the hold after the vessel left London? Was the fire caused by a lighted match being thrown down the ventilators?

Dr. Dupré, chemical adviser to the Home Office, said he examined a specimen of the felt shipped on board the *Glenartney*, and found it to contain 40·3 per cent. of fibre and 59·7 per cent. of resin, with a slight

admixture of a heavy mineral oil which would not absorb any considerable quantity of oxygen. He ascertained by heat experiments that the felt was not liable to spontaneous combustion. At a temperature of 220 degrees it showed no sign of decomposition by ignition. He subsequently experimented with colza, olive, and cottonseed oil, using cotton wool as a medium. Exposed in the heating chamber to a temperature of 100 degrees for six hours nothing happened, but at a temperature of 130 degrees in a few hours the cottonseed and the colza oils took fire, and the olive oil took fire about four hours after. He had, therefore, no doubt that this inodorous felt was not liable to spontaneous combustion. There was a possibility that if the felt had come into contact with either olive or colza oil it would have taken fire. But as the felt was so very dense it was very doubtful whether it would have ignited in those circumstances, because ignition required a certain amount of air. From his experience of cotton ships he thought it likely that something had got down the ventilators or into the hold when the hatch was up—a match or a spark of fire—and smouldered for some time. In his own experiments he had had cotton smouldering for five days, and then on being unrolled it had burst into flame. There could have been no combustion going on when the fourth officer visited the hold, as its presence would have been betrayed by the smell of the oil, which was exceedingly penetrating and pungent.

REPORT OF THE INSPECTORS

After due deliberation the inspectors before whom the inquiry was made report that at a special meeting of the Feltmakers' Association held in London in 1884 it was resolved that, inasmuch as inodorous felt is liable to spontaneous combustion, in future no inodorous felt should be shipped to foreign parts; and that the following notice should be placed on all letters relative to inodorous felt for shipment abroad:—"Inodorous felt, being liable to spontaneous combustion, should not be shipped for transmission abroad; but if you wish to do so, please see the Merchant Shipping Act of 1873, sections 23 and 24." The "dangerous goods" sections of the Act thus referred to are now section 446 of the Merchant Shipping Act, 1894. It was subsequently agreed to mark prominently on each frame the words "inodorous felt" in red letters $1\frac{3}{4}$ in. long. The above resolutions were adopted on account of the frequent occurrence of spontaneous combustion in inodorous felt on board ships at that time. They were embodied by the Board of Trade in instructions to their principal and other detaining and emigration officers. Mr. Edward Nelson, of the firm of Messrs. M'Neil and Co., who made the inodorous felt shipped on board the *Glenartney*, accordingly marked the felt which was upon her with the notice to the effect that it was liable to spontaneous combustion. Formerly the resin used in the manufacture of this felt was softened with pine oil, and the felt was then found liable to spontaneous combustion. Some light mineral oil or naphtha was then added which gradually evaporated and surrounded the felt with a layer of its vapour, which kept off the oxygen of the air, thus preventing oxidation and consequently spontaneous combustion. When, however, the light mineral oil evaporated the felt became liable to ignition as before. According to Dr. Dupré, who gave evidence before the Inspectors, mineral oils are not liable to spontaneous combustion, for they do not unite with oxygen at any natural temperature, but, on the other hand, all vegetable oils are more or less liable to spontaneous ignition, and, therefore, render any substance with which they may be mixed so liable under favourable conditions.

ALL DEPENDS UPON THE METHOD OF MAKING.

The Inspectors found that inodorous felt is or is not liable to spontaneous combustion according to the materials used in the manufacture. If, in the first place, the resin contained in it has been sufficiently heated to free it from oil of turpentine—as was the case here—and, in the second place, if that resin is softened with mineral oil, it is not so liable. If, however, the resin has not been freed from oil of turpentine or is softened with a vegetable oil it would be liable to spontaneous ignition. The Inspectors took evidence as to the composition of the inodorous felt on board the *Glenartney*, and found that it was not liable to spontaneous combustion. They were also of opinion that in stowing the cargo the inodorous felt was properly separated from certain barrels of oil which the vessel carried. It was important that this precaution should be taken, for, according to Dr. Dupré, who has ascertained by actual experiment that colza and olive oil may ignite spontaneously, there may have been danger of fire if the felt came in contact with either of those oils. In the Inspectors' judgment, however, this did not happen, for the oil barrels were found quite sound and full without leakage. The Inspectors are of opinion that the fire was caused by contact with fire introduced into the hold. The instructions issued by the owners were sufficient; for no naked lights were permitted below, officers were not allowed to smoke on the bridge, nor the crew on the deck. When, however, the vessel was passing through the Canal the pilot was smoking cigarettes on the bridge, under which there was a ventilator, and it was quite possible (the report continues) that a match or the end of a lighted cigarette

might have found its way down the cowl of the ventilator and so into the hold. They find it impossible to state definitely the cause of the fire, but are clear that prompt and proper measures were taken to extinguish it.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

BORAX AS A PRESERVATIVE.

(To the Editor of the Chemical Trades Journal.)

SIR,—In your journal of the 5th instant you refer to the use of boracic acid as a preservative of butter, and having been in the borax trade for over 50 years, a few remarks from me may be of some interest to your many readers.

When boracic acid was first discovered in Tuscany in the Fumarols, or from the steam jets that find their way on to the surface of the earth, the use of boracic acid was quite unknown. Fossi and Ladarel may be fairly called the pioneers to first introduce this product in commerce. This crude acid was sent to Edward Wood, of Liverpool, and converted by him into refined borax, and sold principally to the earthenware manufacturers to glaze the pots and china ware. The supply was small, the price was high, and the above-named gentlemen made enormous fortunes by it. They first reduced the price of refined borax made from the acid so that the tincal from Thibet ceased to be an article of commerce in this country, and all the Amsterdam refiners had given up the business of making borax from tincal. About the year 1847 I revived the tincal trade in this country with great success, the potters being all anxious to assist me. Afterwards borate of lime was found in Peru (now Chili), and small lots began to arrive. The boracite was then discovered in Asia Minor. Afterwards I heard that native crude borax had been found in Nevada, and I thought I would like to take a run out and see for myself. I found that many parts were but very little known at that time in Nevada, yet the crude borax was found in various forms, but some of the deposits would not pay to work. I stopped for some little time at the small native town of Winnemucca, and there met an American trying to run a newspaper. He saw I was an Englishman, and asked me if I could assist him in writing an article for his paper. I told him I could give him information about borax and boracic acid, and afterwards appeared a long account of tincal qorax. I left this Indian town for Hot Wells and other crude borax deposits in Nevada, and found some of them contained very thin deposits (only one inch thick in some parts), but I found the deposits in Esmeralda county much better. I afterwards was besieged on my arrival at San Francisco by parties anxious to get information about borax land. A copy of our joint report which appeared in the Winnemucca paper was published in the San Francisco papers. This was the cause of several parties in San Francisco trying to see me. A gentleman from one of the banks called upon me at my hotel. He told me he had advanced the Searles some £100. on some land that contained borax, and he arranged with me to go and see it. Another gentleman that had some interest in some land down south offered to make me a present of 640 acres if I would go and report on his other piece of land. I arranged to go, and made my way to Los Angeles, and from here I had to go with a mule team about 260 miles inland, a terrible journey. I eventually arrived and was met by the Searles, and I then found borax in any quantity, in fact borax is found here of the purest quality. Here was a deposit of pure crystal borax a foot underneath a soft blue mud. This is put into hot water, the sulphate of soda dissolves, and fine borax, similar to which is made in England, is found. I brought a large specimen and deposited it in the British Museum. This is the only deposit of pure natural borax I ever saw in my life. I believe the deposit has all been worked out. I afterwards made my way to another deposit near Death Valley, and found crude borax in large quantities. A curious circumstance took place. I was prospecting on borax land with a friend and our water became hot and undrinkable. I got him to go and find fresh water. While he was gone I saw a brown substance on the crude borax. I went to it and found it was a dead horse. I sat on it and began to pull the hair and found it firm. I then cut the horse open and found the inside perfectly sweet. Many experiments have been made with borax and boracic acid. I never heard of anyone being affected by taking borax or boracic acid, but I always recommend all my friends to use borax for preserving in preference to boracic acid. The latter is most useful to medical men and hospitals. They all use it for many purposes—for bad eyes, tender feet, the skin, bite of dog, cat or snake, cuts, burns, or scalds, etc., and if it was generally known it would, I think, relieve or prevent one-half the pain that exists in the world. I have recommended its use to many, and received the thanks of thousands of people.—Yours, &c.,

Mincing Lane, E.C.

ARTHUR ROBOTOM.

OIL LAMP RESERVOIRS.

AT St. Bartholomew's Hospital, London, on Wednesday, Mr. S. F. Langham, the city coroner, held an inquest concerning the death of Sarah Uridge, aged 42, the wife of a printer, at 24, Coburg-street, Clerkenwell, who was fatally burned through a petroleum lamp explosion at that address on Boxing-day. William Uridge deposed that he had a party on Christmas night, there being so many persons present that the room would scarcely accommodate them. About two o'clock on Boxing morning his wife was refilling the lamp whilst it was alight, when the lamp, which had a glass reservoir, suddenly exploded in her face. Her clothing was seen to be on fire, and she was so severely burned about the body that she died soon after she was taken to the hospital on a fire-engine. Frederick Faulkner, a lodger in the house, stated that upon hearing the sound of the explosion he ran upstairs and burst the door of the room open. He rescued several children from the flames, which had spread amongst the party, and in doing this he severely burned his right arm. Several other persons were also burned, and had to be medically treated for their injuries. Thomas Pearch, foreman fireman at the Farringdon-road Station, said that on arriving at the house he found Mrs. Uridge lying outside on the pavement, an ambulance having been sent for. Finding the fire was extinguished, the witness at once carried her into the house, and treated her burns with such things as he had on his engine—oil and lint, etc.; and as the ambulance had not arrived, the witness had the woman taken to the hospital on the engine. Mr. Gibbons, of the County Council (Petroleum Department), deposed that he had investigated the case, and found that the explosion was due to the fact that the lamp having burned for ten hours, the reservoir became filled with heated vapour in the place of the oil, and when it was refilled the flame came in contact with the vapour. Mr. Gibbons said that during last year there had been no fewer than 43 deaths in London through the explosion of lamps with glass reservoirs. The jury returned a verdict of accidental death.

[Whatever the reservoir could have had to do with the explosion in this instance we really cannot see. The jury though were evidently blessed with far more intelligence. If ever there was a case against the oil *per se* this is one, as Mr. Gibbons' evidence shews. His last remark may be true, but it is quite irrelevant in this case.—ED. C.T.J.]

Trade Notes.

NITRATE DIVIDEND.—The Board of the Lautaro Nitrate Company, Ltd., has declared an interim dividend at the rate of 10 per cent. per annum (5s. per share), free of income-tax, for the current year.

ARKANSAS MANGANESE.—The manganese deposits of Arkansas are more extensive than has hitherto been believed. Instead of pockets, beds have been found, and veins varying in width from four inches to six feet. In places almost pure mineral is found, suitable for making both steel and glass.

SOCIETY OF CHEMICAL INDUSTRY: London Section.—The next meeting will be held at the Chemical Society's Rooms, Burlington House, on Monday, January 4th, 1897, at 8 p.m., when the following papers will be read:—(1) "The Smelting and Refining of Cyanide Bullion," by Arthur Caldecott, B.A.; (2) "The Industrial Use of a Recording Pyrometer," by Prof. Roberts-Austen, C.B., F.R.S.

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—The next meeting of this section will be held in the Chemical Laboratories University College, on Wednesday, January 13th, 1897, at 7 p.m., when a paper will be read on "The Efficiency of an Electrolytic Cell," by Dr. F. Hurter and Dr. Zahorski.

MORE ARTIFICIAL DIAMONDS.—Dr. Johnstone, a Washington scientist, is about to erect a laboratory at Niagara Falls for the manufacture of diamonds by crystallising pure mineral carbon with electrical current of enormous power derived from the Niagara electric works. By this process Dr. Johnstone declares he will eventually produce diamonds surpassing the Koh-i-nor in size, colour, and purity.

NEW DYES.—Messrs. Leopold Cassella and Co., of Frankfurt-on-Main, have issued a quarto pamphlet showing which of the dyes they make are capable of being used for preparing lake pigments, and giving particulars of the precipitants used. The book is illustrated with slips of paper painted with the pigments noted. The *Farbwerk Muhlheim* vorm. A. Leonhardt and Co. have favoured us with two handsome pattern cards showing the application of their new dye, Pegu Brown G, in the dyeing of cotton tissues of all kinds, wool and half-wool fabrics. This new dye appears to have some properties which ought to commend it to the notice of the dyer.

IMPROVED MINERS' LAMPS.—At a recent meeting of the South Staffordshire Mining Institute, held at Stoke-on-Trent, a paper by Mr. John Heat, on "An improvement in safety-lamp construction," was read. It was an explanation of an arrangement by which the gauze in a bonneted lamp is riveted to a rim of the lamp, thereby rendering it impossible for the lamp-cleaner to put the lamp together and send it out without the gauze. A lamp was exhibited to the members, showing the arrangement devised. Several members spoke approvingly of the lamp, and said it was a remedy for a real danger.

BUTTER FROM FINLAND.—Until quite recent years, Russia was Finland's chief customer for dairy produce. But when Denmark successfully invaded the British market, and made fine profits by so doing, the farmers of Finland saw their advantage in following suit. Their butter is of as good quality as the best Danish, and being produced at less cost, there seemed no reason why it should not win as much favour in Great Britain. So far as the experiment has yet gone, Finland may claim to have achieved a brilliant victory; last year, she exported more than 31,000,000 lbs., and of this, England took the greater part. It is curious, then, that one never sees butter labelled "Finnish" on sale. Can it be that the article shakes off its nationality after arrival, and becomes naturalized forthwith? Even, however, if that happens, the buyer does not really suffer, as the quality is said to be as good as that of the finest sorts in the market. It has always been held in high esteem in Russia, but prices in that market are so much lower than in England that the Finnish farmer finds his profit in exporting to the more distant country.

THE FRENCH ACADEMY OF SCIENCES AND LORD KELVIN.—At the annual meeting of the Academy of Sciences recently one of the two Arago medals was awarded to Lord Kelvin in honour of the recent jubilee of his professorship at Glasgow. M. Cornu, the president, spoke in glowing terms of the recent celebration at Glasgow. "Nothing," he said, "was more touching than the number and unanimity of the testimonies offered from all parts of the world to this descendant of a family of Irish farmers who by his intellectual power has gained universal renown and has earned from the suffrages of his admirers the highest scientific dignities and from the Government of his country the highest social rank. Nothing is more consoling for the future than the spectacle of those honours rendered by delegates of all nations to great men of science like Lord Kelvin and Pasteur, who so worthily represent science in its loftiest and, at the same time, most beneficial aspect. Modern nations, though crushed by the yoke of material interest and by the barbarous law of blood and iron, know how on great occasions to raise their eyes towards the serene regions above animosities and covetousness, and to honour in unison the great men whose labours increase the common patrimony of intelligence and their country's prestige as well as the welfare of mankind." M. D. Abadie, the Abyssinian explorer, received the other Arago medal, and the prize was awarded to Prince Henry of Orleans for his explorations. M. Cornu, in an address on the X rays, dwelt on the "brilliant experiments," of Mr. Crookes twenty years ago, the lustre of which had been rekindled by the new researches of Philippe Renard and Röntgen.

THE MANCHESTER CHEMICAL CLUB.—The first smoking concert of the session recently passed off most successfully. In the unavoidable absence of the President (I. Levinstein, Esq.), and also Sir W. Bailey, who had subsequently been asked to preside, the chair was taken by Mr. F. J. T. Bishop, who welcomed those present, both members and strangers. He regretted that so many of the members themselves were all but strangers to the club. He trusted, however, they would all enjoy themselves, but before commencing the programme, as the order of the evening was enjoy yourselves, he would suggest that they took the opportunity to "order" whatever was most to their liking. An excellent programme of vocal and instrumental music and humorous recitations had been prepared under the direction of Mr. Truby, and was ably carried through. Among numbers specially appreciated were the violin solos of M. C. O. Weber, the solos on the English concertina, the quartets, and the humorous element. In the course of the evening the Chairman, in wishing them all good New Year wishes, referred to the advantages offered by the club and the library, which had been recently enriched by the contribution of a complete set of patents (see *Journal* No. 497, p. 355). Thus members could now make a complete search up to the final specification. The committee were desirous of making all the improvements they could, and it must be remembered that they always presented a balance sheet with the balance on the right side. They were not "cadging" for members, but the stronger the club was the better, and therefore he had thought fit to make known on this occasion the advantages of the club. He also referred to the visit of the Society of Chemical Industry to Manchester in 1897, and after stating some of the benefits conferred by membership, expressed the hope that the Secretary would have many new proposals to send up during the year 1897.

CATALOGUE OF CHEMICAL BOOKS.—A new and revised catalogue of second-hand scientific works has recently been issued by Mr. W. F. Clay, of Teviot Place, Edinburgh. He offers special terms to chemists and others abroad for procuring new books as well as second-hand copies. Further particulars of the catalogue will appear in the Special Issue of the *Journal* on Jan. 16th, which should be duly consulted by all interested.

ANDERSONIAN CHEMICAL SOCIETY.—The opening address was recently delivered by Professor A. Humboldt Sexton, F.I.C. Professor G. G. Henderson, M.A., D.Sc., occupied the chair. The subject was "Aluminium and its Future." The lecturer pointed out that aluminium, owing to its lack of tensile strength, would never replace steel in its general use, but in articles where lightness alone was required it would be invaluable. The alloys of aluminium, on the other hand, were of the greatest value. He described the methods which had been used for its manufacture, and pointed out that the electrical processes by which aluminium was now prepared could only be carried on profitably where power was cheap, hence the necessity for utilising waterfalls.

NOTICES.

LONDON AGENTS

Booksellers and Newsagents may now obtain supplies of

"THE CHEMICAL TRADE JOURNAL"

From

MR. JOHN HEYWOOD,

30, Shoe Lane,

On usual trade terms.

London, E.C.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are steady, makers being pressed for deliveries. Price for 90's is 2s. 9d. and for 50/90's 2s. 6d., prompt; for forward, January-March, 2s. 9d. and 2s. 5d. respectively. Carboic acids are firm, and inclined to advance, but so far there is no material change in values. Naphthas are steady—solvent is scarce, and firm at 1s. 7d.; crude is not moving very well, but the price is unaltered. Pitch is steadier, and buyers are showing more disposition to purchase—quotation is 26s., f.o.b. East Coast. Anthracene is figuring at 8½d. for 30% A and 7½d. for B.

Sulphate of ammonia is steady, and has been but slightly affected by the holidays, the volume of business passing having been satisfactory. Consumers are very cautious, and the high price asked for spring delivery has checked forward dealing, but not stopped it. Nearest values are:—London outside makes £7. 13s. 9d., Liverpool £7. 12s. 6d., Hull £7. 12s. 6d., and Leith £7. 12s. 6d., all prompt.

REPORT ON MANURE MATERIAL.

Business has been of quite a holiday character, and prices remain practically unchanged. There is perhaps rather more inquiry for mineral phosphates, but for the most part United Kingdom buyers remain indifferent. No further business is reported in River Plate bones, the cargoes offering being too late for the coming season, and buyers being disinclined to pay present prices if they have to hold over until next season. There are sellers of Bombay bone meal afloat and for shipment at £3. 17s. 6d. per ton, ex quay Liverpool, but ex store £3. 18s. 9d. is asked. Nitrate of soda is quiet but steady, at 7s. 10½d. per cwt. for ordinary, and 8s. per cwt. for fine quality, on

spot. Due cargoes are worth barely 7s. 9d. per cwt., there being not much disposition on the part of buyers to operate. There is nothing special to report in miscellaneous material.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade the export demand continues active in caustic soda and bleaching powder, and prices of the former are rather firmer for prompt delivery. Current quotations being as follows—f.o.b. Liverpool, 77%, £9.; 74%, £8. 5s.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. per ton, 10-ton lots. In ammonia alkali there is no change in the position, and demand is rather quiet; price at £3. 5s. to £3. 7s. 6d. f.o.r., maker's works, in bags. Soda crystals unaltered. Bicarbonate remains at £6. 10s. f.o.b. Bleaching powder for the home trade firm at £6. 10s., f.o.r.; and for forward contracts 5s. per ton lower. Chlorates of soda and potash are without change in position or value, at 5¼d. and 4¼d. respectively. Recovered sulphur in strong demand, and firm in price at £4. 12s. 6d. to £4. 15s. f.o.r. Sulphate of copper active at £17. 15s. f.o.b. Salteake rather quiet for prompt, but firm in price, at 20s. to 21s. per ton. For potash, caustic, and carbonate there is still good spot and forward inquiry, and full prices are maintained. Acetate of lime: Brown, firm at £4. 5s. to £4. 10s. c.i.f., principal ports; grey, quiet at £8 to £8. 5s. For white powdered arsenic there is good inquiry, and price is firm at £24. f.o.r., usual points. Yellow prussiate of potash unchanged at 5¼d. Sulphocyanides dull. Borax continues to offer freely, and prices are in buyers' favour. In muriate of ammonia there is a continued lower tendency, quotations being £20. in usual districts of consumption. Other ammonia salts steady. Aniline oil and salt without quotable change for present delivery.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 48s. 7d., Middlesbrough 40s. 8d. cash, and hematite 50s. 11d. Copper, steady: Chili bars, G. O. B.'s and G. M. B.'s, closed at £49. 5s. to £49. 10s. cash, and £47. 17s. 6d. to £50. 2s. 6d. three months. Tin, steady: Straits closed at £58. 1s. 3d. to £58. 11s. 3d. cash, and £58. 18s. 9d. to £59. 8s. 9d. three months; Australian, £59. 12s. 6d.; English ingots, £62. 7s. 6d. Lead Spanish, £11. 11s. 3d.; English, £11. 15s. Silesian spelter, ordinary, £17. 17s. 6d. Nickel, 1s. 2½d. Antimony, £30. 10s. to £31. Quicksilver: First hands, £6. 12s. 6d.; second hands, £6. 10s. Copper shares, quiet: Cape, 2½ to 2½; Copiapo, 1½ to 2½; Libiola, 1½ to 1½; Mason and Barry, 2½ to 2½; Rio Tinto, 25¼ to 25½; Tharsis, 5½ to 6½.

GLASGOW, TUESDAY.—Market steady, with a moderate business. Scotch done at 48s. 7½d., 48s. 7d., 48s. 8d., and 48s. 7½d. cash; also at 48s. 10½d. and 48s. 11d. one month; buyers, 48s. 7d. cash; sellers 48s. 8d. Cleveland, buyers, 40s. 8d. cash; sellers, 40s. 9d. Cumberland hematite done at 51s. 0½d., 50s. 11½d., 51s., and 50s. 11½d. cash; also at 51s. 3d. and 51s. 3½d. one month; buyers, 50s. 11d. cash; sellers, 51s. Middlesbrough hematite done at 49s. 8d., and 49s. 7d. cash; also at 49s. 9½d. and 49s. 10½d. one month.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady. There is but little offering, but buyers are scarce and rather indifferent, so there are no sales to report. Olive keeps steady, but there is really nothing doing. Linseed is being held for 16s. 3d. to 17s. 6d. per cwt. according to quality for Liverpool makes in export casks. Cottonseed is steady at 15s. 9d. to 16s. 3d. for Liverpool refined and 17s. 6d. per cwt. for American. Castor oil is steady at 33d. for good seconds Calcutta and 2½d. per lb. for first pressure French. Tallow keeps steady and unchanged. Resin remains firm in price at 6s. 3d. to 6s. 6d. for common, 6s. 6d. to 7s. 3d. for medium, and 7s. 3d. to 8s. 6d. for fine, but the market is very quiet. Spirits of turpentine are moving fairly well on spot at 21s. per cwt. Petroleum is about the same as regards the market, prices still standing at 6¼d. to 7¼d. for American and 5¾d. per gallon for first pressure French.

COLOURS. Prices are steady, and practically without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £15. Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 90s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 65s. Umber: 40s. to 45s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Owing to the holidays business is thoroughly out of gear, and so far as Scotland is concerned this state of matters will become more pronounced before the return journey to the normal order of things is undertaken. From now onwards for about a week at least there will be a minimum of production, but much activity in the annual cleaning up and repairing for which the holidays of the ordinary workmen give opportunity. On these accounts the common market indications are for the time absent, or only very dimly evidenced. Standard chemicals continue very quiet, and though there are no specific instances of lowered prices the tendency is unquestionably in that direction. Sulphate of ammonia does not appear to have lost anything for some days, and the price for prompt is £7. 10s. Leith, or about that to £7. 12s. 6d. Glasgow. Mineral oils and paraffin are priced as before, but deliveries are undergoing the holiday interruption.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/52°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d. and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 12s. 6d. nett, Tyne; saltcake, 21s.; borax, English, refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½ d. nett, for Scotch and English deliveries (for export, 4¼ d. nett, f.o.b. Glasgow); bichromate of soda, 3¼ d. nett, for Scotch and English deliveries (for export, 3½ d. nett, f.o.b. Glasgow); chlorate of potash, 4½ d. less 5%, any port; nitrate of soda, 7s. 10½ d. to 8s. 3d.; sulphate of ammonia, £7. 10s. prompt, f.o.b. Leith; sal ammoniac, first and second white, £37. and £35. nett, any port; sulphate of copper, £17. 10s. to £17. 15s. less 5%, Liverpool; paraffin scale, hard, 1½ d. to 1¾ d., and soft, 1½ d. to 1¾ d. per lb.; paraffin wax, 120° semi-refined, 1½ d. to 2¼ d. per lb.; paraffin spirit (naphtha), 7½ d. per gallon; paraffin oil (burning) No. 1, 6¼ d., and crystal, 6½ d., at Glasgow and other big centres, for Scotch buyers (English sales ½ d. to ¾ d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 9,000 bags beet unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are very dull, and prices are practically the same as those which have ruled for some months past. Soda crystals, £2. 2s. 6d. per ton gross weight locally. Caustic, 76/77°, £9. per ton; 70%, £7. 10s. per ton. Sulphur scarce at £5. per ton.

Bleaching powder, softs, £7. per ton, nett; hards, £7. 5s. per ton, nett; caustic soda, 76/77°, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, nett weight; gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening,

£3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt firm at 9s. to 9s. 6d. per ton, f.o.b. Tees. Heavy shipments are being sent to India.

COALS.—Trade is steady generally, and there has been a fairly good demand over the holidays. Coke continues firm, and 15s. to 15s. 6d. per ton is now the current quotation. Best Northumbrian steam, 7s. 9d. to 8s. per ton; second qualities, 6s. 9d. to 7s. per ton; small steam, 3s. 6d. to 3s. 9d. per ton. Gas coals, 7s. to 8s. per ton. Bunker coals, 6s. 9d. to 7s. per ton. Household coals, 10s. to 11s. per ton. Coke, 15s. to 16s. per ton.

New Companies.

Brammall Bros., Ltd.—CAPITAL £30,000., in shares of £10. each. This company has been formed to carry on the business of soap, candle, disinfecting preparation manufacturers and dealers, now carried on at Old Swan, Liverpool, under the style of Brammall Bros. The subscribers to the memorandum of association are:—E. Brammall, jun., 4 and 6, Camden-street, Liverpool, merchant; H. E. Brammall, Broad Green, Liverpool, manufacturer; H. F. Brammall, Ash House, Broad Green, Liverpool, manufacturer; Miss M. Brammall, Finch Lane, West Derby, Liverpool; J. Temple, Elmswood-road, Aigburth, Liverpool, merchant; J. H. Temple, Elmswood-road, Aigburth, Liverpool, merchant; S. Field, 5, Fenwick-street, Liverpool, solicitor.

Broughton Solvay Coke Co., Ltd.—CAPITAL £25,000., in shares of £10. each. This company has been formed to carry on the business of coke manufacturers, colliery proprietors, etc. The subscribers to the memorandum of association are:—H. B. Robertson, Kt., Pallé, Merioneth; F. G. Whetwham, 8, Drapers' Gardens, E.C., agent; W. B. Burton, Eryl Arran, nr. Bala, retired colonel; J. H. Darby, Brymbo, Denbigh, manufacturer; F. A. Sturge, Coed Efa, nr. Wrexham, secretary; A. Darby, Brymbo, Denbigh, secretary; R. Johns, Broughton, Denbigh, secretary. The number of directors is not to be less than three nor more than six; the first are Sir H. B. Robertson, Sir A. Hickman, A. C. Boyd, J. H. Darby, A. H. Bright and F. A. Sturge.

Garston Chemical Works, Ltd.—CAPITAL £5,000., in shares of £5. each. This company has been formed to manufacture, sell and deal in sulphate of manganese, borate of manganese, paints, pigments, greases and chemicals. The number of directors is to be not less than three or more than five; the first are G. G. Blackwell, C. Blackwell and A. T. Wright.

T. and W. Farmiloe, Ltd.—CAPITAL £300,000., in shares of £100. This company has been formed to acquire the business of lead, glass and colour merchants and varnish manufacturers, now carried on at Westminster, Nine Elms-lane, Battersea and Mitcham. The subscribers to the memorandum of association are:—T. Farmiloe, Rochester-row, Westminster, merchant; W. Farmiloe, Rochester-row, Westminster, merchant; J. Farmiloe, Rochester-row, Westminster, merchant; G. A. Farmiloe, Rochester-row, Westminster, clerk; H. J. Farmiloe, Rochester-row, Westminster, clerk; H. Farmiloe, Rochester-row, Westminster-row clerk; J. L. Farmiloe, Rochester-row, Westminster, clerk.

IMPORTS OF CHEMICAL PRODUCTS AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		Barium Sulphate—		Aden, 4		L. & I. D. Jt. Co'		Chemicals (otherwise undescribed)	
Week ending December 19th.		Belgium, 36 brls. W. Harrison & Co.		Holland, 100		J. Barber & Co.			
Acetate of Lime—		Barytes—		Castor Oil—					
U. States, 1,311 bgs R. E. Drummond		Belgium, 140 brls. J. L. Lyon & Co.		Japan, 12 cs. L. & I. D. Jt. Co.				Germany, £10	
Acetic Acid—		Holland, 44 cks. Taylor Bros. & Co.		E. Indies, 150		Anderson, Weber & Smith		40	
Holland, 125 pks. A. & M. Zimmermann		Belgium, 33 300 bgs. Burrell & Co.		Italy, 25		Major & Field		3	
100 R. W. Greeff & Co.		Caoutchouc—		France, 10 brls. Lucas & J Greig				42	
Alum—		Zanzibar, 24 c. S. Figgis & Co.						53	
Holland, 27 cks. T. H. Lee		Belgium, 1 Sociéte John Cockerill		Caustic Potash—				20	
Arachide Oil—		Aden, 18 Wallace Bros		Belgium, 8 drs. Petri Bros				700	
Holland, 11 cks. S. F. Railway Co.		Singapore, 104 I. & I. D. Jt. Co.		France, 10 W. E. Cole				20	
Asbestos—		Aden, 25 Major & Field						5	
Germany, £65 Craven & Co.		Natal, 37 Prop. Bull Wf.						112	
		Germany, 1 "						215	
								279	
								4	
								82	
								40	
								100	
								671	
								Phillips & Grove	
								L. & I. D. Jt. Co.	
								H. Wallace & Co.	
								Mory & Co.	
								Bailey & Leishan	
								H. Lambell	
								F. Parker	
								Fuerst Bros.	
								Ryley & Co.	
								T. H. Lee	
								R. Greening	
								Sociéte John Cockerill	
								E. Sedgewick & Co.	
								Burnett Bros. & Sons	
								Lesch & Co.	
								T. H. Lee	
								A. & M. Zimmermann	

Cream of Tartar—

France,	10 cks.	B. & F. Wf. Co.
Italy,	4	W. C. Bacon & Co.
Italy,	10	Fellowes, Morton & Co.
France,	4	L. & N.-W. Rly. Co.
"	5	F. C. Devon & Co.
"	5	M. Ashby, Ltd.

ryolite—

Denmark,	£40	M. D. Co.
----------	-----	-----------

Dyestuffs—

Italy,	381 bgs.	B. Jacob & Sons
Spain,	564	"
Cochineal		"
Canaries,	10 bgs.	Kuhner, Henderson & Co.

Cutch

E. Indies,	2,000 bxs.	Arracan Co.
------------	------------	-------------

Extra—

France,	40 cks.	B. & F. Wf. Co.
U. States,	53	W. Burton & Sons
Belgium,	40 cs.	T. H. Lee
Denmark,	36	Bailey & Leetham

Gambler

Singapore,	1,362 bgs.	Beresford & Co.
"	432	G. R. Haller
"	698 bls.	Brinkmann & Co.
"	1,005	A. B. Curtis & Co.
"	2,263	P. & O. Co.

Indigo

E. Indies,	6 chts.	G. S. N. Co.
------------	---------	--------------

Naphthaline

Germany,	26 cks.	T. H. Lee
"	26	Flemming's Oil Co. Co.

Saffron

Spain,	1 cs.	Major & Field
--------	-------	---------------

Shumac

Italy,	200 bgs.	Fisher, King, & Co.
--------	----------	---------------------

Valonia

A. Turkey,	13 t.	M. D. Co.
------------	-------	-----------

Farina—

Germany,	100 bgs.	W. Balchin
"	100	1 ck. Hernu, Peron & Co.
Holland,	50	Dunlop Brs. & Co.
"	250	G. Horzee
"	50	J. Knill & Co.

Glucose—

U. States,	5,001 pks.	5,001 c. Pearce, Pelly & Co.
"	500	3-37 c. R. G. Hall & Co.
"	500	500 G. Clark & Son
"	250	1,522 Bellamy & Co.
"	50	300 Robinson, Sun & Co.
"	50	300 A. B. Curtis & Co.
Germany,	14	115 J. Knill & Co.
U. States,	500	500 Williams, Torrey & Co.
France,	400	400 W. E. Cole

Glue—

U. States,	£45	Anglo-Am. Oil Co.
Austria,	24	M. D. Co.
Germany,	24	J. Barber & Co.
Austria,	130	C. A. & H. Nichols
France,	41	J. Harrison
Germany,	50	L. & I. D. J. Co.
"	60	H. Rosenhay & Co.
"	133	Craven & Co.
Austria,	140	Vokins & Co.
France,	15	Ihlee & Sankey
"	10	Mory & Co.
"	96	Bennett S. S. Co.
U. States,	50	Burnett Brs. & Sons
Germany,	130	Staveley & Co.
Holland,	163	T. H. Lee
U. States,	81	G. Rahn & Co.
"	81	H. Johnson & Sons
"	81	B. Gallaway

Infusorial Earth—

Germany,	100 t.	A. Haacke
----------	--------	-----------

Lamp Black—

U. States,	220 bbls.	M. Ashby, Ltd.
------------	-----------	----------------

Lead Acetate—

Germany,	11 cks.	R. W. Greeff & Co.
"	43	F. Beehm

Litharge—

Germany,	1 ck.	Randall Bros.
----------	-------	---------------

Manganese—

Japan,	250 t.	Fellowes, Morton, & Co.
--------	--------	-------------------------

Manure—

E. Indies,	300 t.	A. Hunter & Co.
Belgium,	45	Anglo-Contl. G. Wks.
U. States,	50 bxs.	Seaward Brs.

Metallic Oxide—

Germany,	3 cks.	Brit. Anti-Fouling Compo Co.
----------	--------	------------------------------

Mica—

E. Indies,	£1935	W. M. Smith & Sons
"	510	E. Davis & Co.

Mineral White—

Austria,	20 bgs.	Fuerst Brs.
----------	---------	-------------

Ochre—

France,	343 cks.	W. Harrison & Co.
"	20	D. Storer & Sons
Holland,	21 pks.	Phillips & Graves
France,	30 cks.	J. L. Lyon & Co.

Phosphate Rock—

France,	240 t.	Anglo-Contl. G. Wks.
Bona,	700	"
"	755	Odams Manure & Chemical Co.

Pitch—

U. States,	65 bbls.	Dusek Brs. & Co.
"	200	J. Greig

Plumbago—

Germany,	60 cks.	B. Gallaway
Ceylon,	197	J. Thredder, Son, & Co.
"	16	Henderson Brs.

Potassium Bicarbonate—

Holland,	9 cks.	A. & M. Zimmermann
----------	--------	--------------------

Potassium Bromide—

France,	2 cks.	Burnett Brs. & Sons
---------	--------	---------------------

Potassium Carbonate—

Germany,	640 c.	W. G. Blagden
"	104	Beresford & Co.
France,	60	J. A. Reid
"	210	Petri Brs.

Potassium Chlorate—

Holland,	18 cks.	R. W. Greeff & Co.
----------	---------	--------------------

Potassium Chloride—

Germany,	250 bgs.	F. W. Berk & Co.
----------	----------	------------------

Potassium Cyanide—

Germany,	20 cs.	Brummer
----------	--------	---------

Potassium Oxymuriate—

Sweden,	30 kgs.	G. Boor & Co.
---------	---------	---------------

Quicksilver—

Holland,	1 ck.	Hernu, Peron, & Co.
----------	-------	---------------------

Rosin—

U. States,	1,200 bbls.	Moore & Hole
------------	-------------	--------------

Saltpetre—

E. Indies,	2,483 bgs.	Lucas & Spencer's
"	£38	Wf. H. Grey, junr.
Germany,	70	S. E. Railway Co.

Soda—

Holland,	400 c.	R. W. Greeff & Co.
Belgium,	4,240	R. Waters

Sodium Acetate—

France,	28 cks.	H. Lorenz
---------	---------	-----------

Sodium Hypsulphite—

Holland,	29 cks.	J. Owen
----------	---------	---------

Sodium Sulphate—

Germany,	100 bgs.	113 pks. Deering & Robottom
----------	----------	-----------------------------

Starch—

Holland,	35 cs.	Phillips & Graves
Belgium,	200	T. H. Lee
Holland,	40	G. Rahn & Co.
Belgium,	49	Leach & Co.
"	350	Sawer, Sons, & Co.
"	350	E. & T. Pink
"	40	J. Harrison
Holland,	809	Little & Johnston
U. States,	160	Beck & Pollitzer
Belgium,	295	F. Claydon & Co.

Stearine—

Holland,	114 bls.	18 cks. J. Owen
Belgium,	25 bgs.	Sawer, Sons, & Co.
France,	100	Bennett S. S. Co.
Belgium,	113	H. Hill & Sons

Talc—

France,	£60	Brasch & Rothenstein
---------	-----	----------------------

Tartaric Acid—

Holland,	45 pks.	Kirkpatrick & Co.
----------	---------	-------------------

Ultramarine—

Holland,	11 cs.	Haefner, Hilpert, & Co.
"	3	7 pks. Hernu, Peron, & Co.
Germany,	43 cks.	T. Hamilton & Co.

Yarnish—

"	48	4 Steinhoff, Scns, & Co.
Belgium,	15 bbls.	J. Harrison
"	10 cs.	W. Harrison & Co.

Yarnish—

Germany,	2 pks.	L. & I. D. J. Co.
U. States,	12	Dawson Brs.

Yerdigris—

France,	2 cks.	B. & F. Wf. Co.
---------	--------	-----------------

White Lead—

France,	20 cks.	J. Watt & Son
---------	---------	---------------

Germany,

"	20	M. Ashby, Ltd.
"	49	Spies Brs. & Co.
"	12	H. Lambert
"	32	Randall Bros.
Belgium,	21	Burrell & Co.
Germany,	13	W. A. Rose & Co.
"	0	A. G. Soutter & Co.
"	12	Piuchin, Johnson, & Co.
"	50	D. Storer & Sons
Holland,	53	F. G. Clifford
"	20	Burrell & Co.
Belgium,	19 bbls.	Perkins & Homer

Wood Pulp—

Sweden,	125 pks.	E. J. & W. Goldsmith
"	440	W. G. Taylor & Co.
Norway,	240	"
Germany,	60	Drolenvaux & Bremner
Norway,	1,600	W. E. Rott & Co.
"	104	Becker & Co.
"	160	Christophersen, Andrews, & Co.
Belgium,	2,460	E. J. & W. Goldsmith

Zinc Oxide—

Germany,	50 cks.	D. Storer & Sons
"	204 bbls.	W. Balchin
U. States,	200	M. Ashby, Ltd.
Holland,	500 cks.	Soundy & Sons

Zinc Sulphate—

Germany,	31 cks.	F. Smith
----------	---------	----------

LIVERPOOL.

Week ending December 17th.

Acetate of Lime—

New York,	990 sks.	"
-----------	----------	---

Alum Cake—

Rotterdam,	105 cks.	"
------------	----------	---

Barium Sulphate—

Antwerp,	42 bbls.	50 bgs.
----------	----------	---------

Barytes—

Rotterdam,	33 cks.	"
Hainburg,	10	"

Bone Ash—

B. Ayres,	1,000 bgs.	Arg. Meat Preserving Co.
"	186	W. B. Dickinson

Bone Black—

Philadelphia,	20 bbls.	"
---------------	----------	---

Bone Meal—

Rangoon,	67 bgs.	"
Bombay,	6,365 tgs.	"

Borax—

Galveston,	5,741 sks	"
Valparaiso,	1,200	"
Hamburg,	5 cs.	"

Chemicals (otherwise undescr.)

Hamburg,	5 cs.	"
----------	-------	---

Colours—

Antwerp,	1 bbl.	"
----------	--------	---

Cottonseed Oil—

New York,	50 bbls.	"
-----------	----------	---

Dyestuffs—

Alizarine		"
Rotterdam,	2 bbls.	"
Annatto		"
Bordeaux,	4 cs.	"
Cochineal		"
Gd. Canary,	34 bgs.	Kennedy & Moon
"	13	Kolp
"	10	Kullenamm & Co.
"	20	Swanston & Co.
"	36	Canary Islands Trading Co.
"		Sperling & Williams

Cutch

Rangoon,	550 bxs.	"
Paris,	1 cs.	Seine & Mersey S. S. Co., Ltd.

Gambler

Singapore,	371 bgs.	1,818 bls. 7 764 bbls.
------------	----------	------------------------

Madder

Rotterdam,	1 ck.	"
------------	-------	---

Saffron

Valencia,	1 cs.	"
-----------	-------	---

Valonia

Smyma,	160 bgs.	"
--------	----------	---

Glucose—

Boston,	50 bbls.	"
New York,	200	T. M. Duche & Son
"	850	5 pks.

Glue—

Rotterdam,	260 bgs.	"
------------	----------	---

Infusorial Earth—

Rotterdam,	333 bgs.	"
------------	----------	---

Iodine—

Valparaiso,	70 bbls.	A. Gibbs & Sons
-------------	----------	-----------------

Kieselguhr—

Bremen,	15 bgs.	"
---------	---------	---

Limestone—

Antwerp,	2 cs.	J. T. Fletcher & Co.
----------	-------	----------------------

Lithopone—

Stettin,	21 bgs.	P. Morris & Co.
----------	---------	-----------------

Wood Pulp—		
Coristiana, 73 cs.	L. S. Dixon & Co.	
Boston, 281 bls. 333 rls.		
Rotterdam, 211		
Zinc Oxide—		
New York, 100 brls.		
Rotterdam, 50 cks.		

MANCHESTER.

Week ending December 19th.

Albumen—		
Paris, 4 cks. 5 cs.		
Alizarine—		
Rotterdam, 15 cks. 4 bas. 49 brls.		
Aluminous Cake—		
Rotterdam, 190 cks.		
Ammonium Acetate—		
Rotterdam, 2 brls.		
Aniline Colours—		
Rotterdam, 23 brls.		
Aniline Salts—		
Rotterdam, 8 cks.		
Antimony Salt—		
Rotterdam, 10 cks.		
Asbestos—		
Rouen, 18 cs. 14 bls.		
Barytes—		
Antwerp, 100 bgs.		
Rotterdam, 2 cks.		
Caustic Soda—		
Hamburg, 11 dms.		
Chemicals (otherwise undescribed)		
Rouen, 20 cks.		
Hamburg, 12 3 cs.		
Chrome Acetate—		
Rotterdam, 1 brl.		
Chrome Alum—		
Rotterdam, 16 brls.		
Colours—		
Rotterdam, 22 cks. 34 cs. 53 brls.		
Rouen, 14 bxs.		

Dyed Blood—		
Paris, 40 cs.		
Farina—		
Stettin, 2,150 bgs.	Browne, Geveke, & Co.	
Hamburg, 850		
100		

Gelatine—		
Rouen, 20 cs.		
Glucose—		
New York, 150 brls.		
Stettin, 3 cks.		

Glue—		
Paris, 2 cs.		
Treport, 3 cks. 7 60 bls.		
Antwerp, 4		
Rouen, 64		
Hamburg, 10 bskts.		

Lead Acetate—		
Hamburg, 6 cks.		
Limestone—		
Antwerp, 2 cks. J. T. Fletcher & Co.		

Lithopone—		
Stettin, 33 cks.		
Logwood—		
Yucatan, 480 l.		

Naphthol Salts—		
Rotterdam, 6 cks.		

Ochre—		
Treport, 34 cks.		

Oxalic Acid—		
Rotterdam, 30 cks.		

Potash—		
Treport, 26 cks.		
Rotterdam, 10		
Hamburg, 5		
40 dms		

Potassium Sulphate—		
Rotterdam, 100 cks.		

Pyrites—		
Hoelva, 1 390 l.		

Salt—		
Antwerp, 2 cks. J. T. Fletcher & Co.		

Saltpetre—		
Hamburg, 17 cks.		

Soda—		
Rotterdam, 41 cks.		
Soda Crystals—		
Rouen, 24 cks.		

Sodium Sulphate—		
Rotterdam, 5 brls.		
Starch—		
New York, 200 bgs. T. M. Duché & Sons		

"		
Rotterdam, 658 1,200 sks.		
Antwerp, 40 cs.		
270		

Stearine—		
New York, 50 brls. Co-op. W'sale Society,		

Tallow—		
New York, 50 hds. Co-op. W'sale Society		

Tannic Acid—		
Hamburg, 2 cks.		

Tar Salts—		
Hamburg, 1 ck.		

Tartaric Acid—		
Rotterdam, 10 cks. 15 kgs.		

Ultramarine—		
Rotterdam, 3 cks.		

Waste Salt—		
Hamburg, 583 bgs. and a qty.		

White Lead—		
Rotterdam, 5 cks.		
Antwerp, 6		

Wood Pulp—		
Hamburg, 400 bds. 685 bls.		

Zinc Ashes—		
Antwerp, 5 cks.		

Zinc Oxide—		
New York, 100 brls.		
Rotterdam, 1 cs.		

HULL.

Week ending December 19th.

Acetic Acid—		
Rotterdam, 34 blns. W. & C. L. Ringrose		

Acids—		
Leghorn, 24 cks. Wilson, Sons, & Co., Ld.		
Bari, 24		

Albumen—		
Reval, 100 cs. Wilson, Sons, & Co., Ld.		
41		

Antimony—		
Leghorn, 4 cks. Wilson, Sons, & Co., Ld.		

Arsenic—		
Hamburg, 5 brls. Wilson, Sons, & Co., Ld.		

Barytes—		
Hamburg, 11 cks. Bailey & Leatham		
Antwerp, 177 cks. H. F. Pudsey		
Rotterdam, 22 W. & C. L. Ringrose		
100 bgs.		

Castor Oil—		
Leghorn, 16 cs. Wilson, Sons, & Co., Ld.		
20		
30		

Chemicals (otherwise undescribed)		
Naples, 2 cks. Wilson, Sons, & Co., Ld.		
Marseilles, 20 bgs.		
Rotterdam, 4 cks. Hutchinson & Son		
Antwerp, 27 pks. Wilson, Sons, & Co., Ld.		

Colours—		
Amsterdam, 8 pks. W. & C. L. Ringrose		
Danzig, 4 Wilson, Sons, & Co., Ld.		
8		
Rotterdam, 2 cks. Hutchinson & Son		
1 kg.		
67 pks.		
Antwerp, 20 Wilson, Sons, & Co., Ld.		
43 1 cs. W. & C. L. Ringrose		
Rotterdam, 4 cks. Wilson, Sons, & Co., Ld.		

Cryolite—		
Copenhagen, 15 cks. Wilson, Sons, & Co., Ld.		

Dyestuffs—		
Alizarine		
Rotterdam, 13 pks. W. & C. L. Ringrose		

Indigo		
Rotterdam, 2 cts. Hutchinson & Son		
" 1 ck. W. & C. L. Ringrose		

Shumac		
Palermo, 562 bgs.		
Trieste, 84 bls. Wilson, Sons, & Co., Ld.		

Valonia		
Palermo, 288 bgs.		
Smyrna, 457 l.		
Dunkirk, 2 cks. Wilson, Sons, & Co., Ld.		

Farina—		
Stettin, 475 bgs. Wilson, Sons, & Co., Ld.		
Harlingen, 1,450 bls. Hutchinson & Son		

Glue—		
Rouen, 29 cks. Rawson & Robinson		
Fiume, 10 pks. 20 bls. 100 bgs.		

Lead Acetate—		
Hamburg, 1 ck. Bailey & Leatham		

Limestone—		
Antwerp, 3 pks. Wilson, Sons, & Co., Ld.		

Manganese Oxide—		
Rotterdam, 10 cks. Hutchinson & Son		

Ochre—		
Marseilles, 87 cks.		
Rouen, 170		

Oxalic Acid—		
Rotterdam, 6 cks. Hutchinson & Son		

Phosphate—		
Ghent, 30 l. Wilson, Sons, & Co., Ld.		

Pitch—		
Amsterdam, 7 cks. Hutchinson & Son		
Antwerp, 4 Wilson, Sons, & Co., Ld.		
23		

Potash—		
Antwerp, 3 dms. Bailey & Leatham		
Dunkirk, 22 cks. Wilson, Sons, & Co., Ld.		

Pumice Stone—		
Leghorn, 32 cs. Wilson, Sons, & Co., Ld.		
Messina, 187 pks. 10 bgs.		

Saltpetre—		
Rotterdam, 4 cks. Hutchinson & Son		

Soap—		
Naples, 37 cs. Wilson, Sons, & Co., Ld.		
Marseilles, 4		
Molfetta, 300 bxs.		

Starch—		
Ghent, 134 cs. Hutchinson & Son		
Antwerp, 60 Wilson, Sons, & Co., Ld.		

Sulphur—		
Catania, 455 bgs. Wilson, Sons, & Co., Ld.		
1,002 pks.		

Tannic Acid—		
Hamburg, 8 cks. Bailey & Leatham		

Tar—		
Stockholm, 20 brls. Wilson, Sons, & Co., Ld.		

Turpentine—		
Libau, 51 brls.		

Ultramarine—		
Amsterdam, 1 cs. W. & C. L. Ringrose		
Rotterdam, 4 cks. Hutchinson & Son		

Waste Salt—		
Hamburg, 230 l. Wilson, Sons, & Co., Ld.		

White Lead—		
Amsterdam, 20 cks. W. & C. L. Ringrose		
Ghent, 4 brls. Hutchinson & Son		
Rotterdam, 11 cks.		
Amsterdam, 116		

Wood Pulp—		
Hamburg, 280 pks. Wilson, Sons, & Co., Ld.		
Helsingfors, 146 J. Good & Sons		

Zinc Oxide—		
Antwerp, 100 cks. Bailey & Leatham		

Rotterdam, 25 Hutchinson & Son		
Zinc White—		
Rotterdam, 10 cks. W. & C. L. Ringrose		

GLASGOW.

Week ending December 24th.

Alizarine—		
Rotterdam, 42 cks. 11 pks. J. Rankine & Son		

Alkali—		
Rotterdam, 20 cks.		

Aniline—		
Rotterdam, 22 cks. 6 cs. J. Rankine & Son		
Hamburg, 29 3		

Aracide Oil—		
Rotterdam, 2 cks. J. Rankine & Son		

Barium Chlorate—		
Rotterdam, 6 cks. J. Rankine & Son		

Barium Sulphate—		
Antwerp, 100 bgs.		

Barytes—		
Rotterdam, 91 cks. J. Rankine & Son		

Castor Oil—		
Antwerp, 84 cks.		

Colours—		
Rotterdam, 9 cks. 1 cs. J. Rankine & Son		
Hamburg, 2		

Cottonseed Oil—		
New York, 100 brls.		

Cream of Tartar—		
Barcelona, 18 brls.		

Farina—		
Delfslyhl, 800 bgs. J. Rankine & Son		

French Chalk—		
Fiume, 200 bgs. P. M'Intosh & Son		
Trieste, 10 Robertson, M'Intosh & Co.		

Glue—		
Rotterdam, 20 bgs. 10 cs. J. Rankine & Son		

Infusorial Earth—		
Hamburg, 121 bgs.		

Phosphate of Lime and Rock—		
Antwerp, 2,040 bgs.		

Pitch—		
Hamburg, 196 cks.		

Potash—		
Rotterdam, 32 cks. J. Rankine & Son		

Soap—		
Fiume, 138 cs. J. Rankine & Son		
Rotterdam, 4		

Sodium—		
Rotterdam, 1 bx. J. Rankine & Son		

Sodium Carbonate—		
Antwerp, 10 cks.		

Sodium Salicylate—		
Rotterdam, 1 bx. J. Rankine & Son		

Sodium Sulphate—		
Rotterdam, 1 ck. J. Rankine & Son		

Starch—		
New York, 900 bxs. 725 sks.		
Antwerp, 100 pks.		
Rotterdam, 122 cs. J. Rankine & Son		

Stearine—		
Rotterdam, 17 cks. J. Rankine & Son		

Tallow—		
New York,	5 lbs.	

White Lead—
Rotterdam, 80 cks. J. Rankine & Son

Wood Pulp—
Fiume, 613 bls.
Christiania, 922

Zinc Oxide—
Antwerp, 65 cks.
Hamburg, 100

Zinc White—
Rotterdam, 115 cks. J. Rankine & Son

TYNE.

Week ending December 19th.

Barium Chlorate—
Rotterdam, 700 bgs. Tyne S. S. Co

Cod Oil—
Bergen, 5 brls.

Colours—
Antwerp, 6 brls. Tyne S. S. Co.
Hamburg, 1 cs.

Glue—
Antwerp, 3 bls. Tyne S. S. Co.

Limestone—
Antwerp, 20 pks. Tyne S. S. Co.

Starch—
Rotterdam, 116 cs. Tyne S. S. Co.

Stearine—
Antwerp, 6 bgs. Tyne S. S. Co.

Ultramarine—
Rotterdam, 1 cs. Tyne S. S. Co.

Wood Pulp—
Christiania, 420 bls.

Zinc Oxide—
Antwerp, 10 brls. Tyne S. S. Co.

GOOLE.

Week ending December 16th.

Alkali—
Calais, 15 cks.

Alizarine—
Rotterdam, 108 cks. 2 cs.

Caoutchouc—
Boulogne, 1 ble.

Colours—
Hamburg, 11 cks.
Amsterdam, 4

Dyestuffs (otherwise undescribed)—
Rotterdam, 212 cks. 59 cs.
Boulogne, 34 1

Extracts—
Antwerp, 39 cks.

Farina—
Hamburg, 400 bgs.
Antwerp, 20

Glue—
Rotterdam, 10 bgs.
Boulogne, 1 cs.

Logwood—
Laguna de Ternins, 300 t.

Ochre—
Calais, 25 cks.

Potash—
Dunkirk, 1 ck. 20 dms.
Calais, 23

Pyrites—
Huelva, 520 t.

Saltpetre—
Rotterdam, 300 bgs.

Tartaric Acid—
Rotterdam, 1 ck.

Waste Salt—
Hamburg, 295 cks.

Wood Pulp—
Rotterdam, 320 bls.
Antwerp, 552

Zinc White—
Antwerp, 20 cks.

GRIMSBY.

Week ending December 19th.

Albumen—
Hamburg, 5 cs. 5 pks.

Caoutchouc—
Rotterdam, 2 cs.
Antwerp, 4
Hamburg, 2

Chemicals (otherwise undescribed)—
Hamburg, 11 cs.
Rotterdam, 40 pks.

Colours—
Rotterdam, 13 cks.
Hamburg, 61 1 cs.
Antwerp, 25 1 116 pks.

Glue—
Dieppe, 8 cks.

Pitch—
Hamburg, 20 cks.

Starch—
Rotterdam, 40 cs.
Antwerp, 20

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending December 23rd.

Acids—
Algoa Bay, 3 t. 2 c. £40
Durban, 24 cs. 47

Alkali—
Perth, 3 t. 5 c. £8

Ammonia—
Karachi, 1 t. £81
Bombay, 9 cs. 85

Ammonium Carbonate—
Yokohama, 4 t. £105
Cologne, 23 pks. 77
Melbourne, 8 c. 11

Ammonium Chloride—
Dedeaatch, 10 brls. £34
Mersyne, 2 10
Dusseldorf, 5 t. 2 c. 112

Ammonium Sulphate—
Martinique, 45 t. 2 c. £367
Hamburg, 50 395
Rotterdam, 20 150
Ostend, 1,705 bgs. 1,180
Bremen, 50 400
Dunkirk, 10 80
Jersey, 8 13 73

Amorphous Phosphorus—
Sydney, 1 c. £12
M. Video, 1 13

Anhydrous Ammonia—
Beira, 4 cyldrs. £10

Arsenic—
St. Petersburg, 10 t. 3 c. £250

Barium Nitrate—
Madras, £16

Bisulphite of Lime—
Natal, 1 t. 9 c. £24
Calcutta, 5 5 83

Bleaching Powder—
Newcastle, 25 t. 2 c. £262

Boric Acid—
Cape Town, 6 kgs. £10

Borax—
Natal, 1 t. £19
Dunedin, 1 19

Carbolic Acid—
Sydney, 40 dms. £13
Antwerp, 5 cks. 8

Carbon Bisulphide—
Brisbane, 20 10
Colombo, 29 cs. 77

Carbon Soda—
Sydney, 100 dms. £45

Cautic Soda—
Cape Town, 1 t. 1 c. £20
Dunedin, 6 19
Natal, 1 9 34

E. London, 2 4 50
Melbourne, 16 9 96

Chemicals (otherwise undes.)—
Auckland, 5 pks. £31
Dunedin, 17 34

Genoa, 26 cks. 202

Bombay, 4 cs. 46

Sydney, 18 34

Natal, 10 49

Antigua, 4 14

N. Orleans, 1 17

E. London, 5 15

Algoa Bay, 50 bgs. 1,640 dms. 74 444

Madras, 6 c. 26

Treport, 5 t. 12 200

Melbourne, 3 cs. 2 47

Cadiz, 1 25

Bremen, 10 10

Fremantle, 12 24

Rotterdam, 10 cks. 88

Boulogne, 3 17

Adelaide, 11 27 84

Chloride of Gold—
Natal, 1 cs. £22

Citric Acid—
Amsterdam, 1 c. £6

Algoa Bay, 3 19

Libau, 14 cks. 5 469

L. Marques, 1 0

Calcutta, 1 cs. 7

Christchurch, 1 6

Coal Products—
Alizarine
Boston, 10 cks. £126

Alizarine Blue
Boston, 6 cks. £126

Aniline Dyes
Calcutta, 1 cs. £16

Aniline Oil
New York, 10 dms. £480
Stettin, 10 cks. 420

Aniline Salts
New York, 30 cks. £300

Anthracene
Dusseldorf, 288 cks. £1,513

Benzine
Melbourne, 10 crts. £14

Benzol
Rotterdam, 48 cks. £380

Creosote
Newport, 500 cks. £333
New York, 2 cs. 15

Mirbane
New York, 30 cs. £95
Sydney, 2 t. 17 c. 202

Naphtha
Melbourne, 520 dms. £18
Adelaide, 15 crts. 20

Naphthaline
Rotterdam, 200 bgs. £110
Hamburg, 65 41
Bombay, 1 ck. 7

Pitch
Terneuzen, 499 t. £885
St. Nazaire, 1,262 2,200

New York, 100 cks. 44

Boston, 250 145

Odessa, 50 41

Dunkirk, 110 155

Antwerp, 270 7 540

Phenyle
Bombay, 20 dms. £18

Pyridine
Hamburg, 3 cks. £95
Stettin, 8 85

Tar
Kilindini, 50 dms. £18
Rangoon, 20 brls. 15

Algoa Bay, 820 40

Coal Products (otherwise undes.)—
Cape Town, 20 kgs. £6
Brus-els, 2 cks. 15

Melbourne, 20 dms. 15

Boston, 20 pks. 105

Copper Sulphate—
Colombo, 24 kgs. £11
Batumi, 9 t. 7 c. 120

Marseilles, 5 4 90

Leghorn, 5 10 90

Cream of Tartar—
Fremantle, 10 c. £48
Rockhampton, 3 13

Cape Town, 4 21

Adelaide, 1 t. 82

Disinfectants—
Brisbane, 19 pks. £35

Natal, 40 cks. 286 dms. 170

Cape Town, 78 62

Hamburg, 10 50

Sydney, 3 cs. 27

Calcutta, 100 94

Otago, 15 41

Colombo, 304 2 72

Gibraltar, 4 19

Algoa Bay, 7 20 500 138

Madras, 15 41

Guano—
Demerara, 10 t. 3 c. £90

Hydrochloric Acid—
Madras, 9 cs. £14

Manure—
Berbice, 40 t. £395
Demerara, 150 5 c. 1,250

Limon, 81 795

Ghent, 46 6 50

Guadeloupe, 473 5,040

Colombo, 14 4 121

Rotterdam, 98 9 195

Lisbon, 12 16 68

Jersey, 1,217 bgs. 75 12 1,091

Havre, 300 100

Nitric Acid—
Jersey, 25 carboys £35

Madras, 15 cs. 40

Oxalic Acid—
Rotterdam, 18 cks. £180

Lisbon, 7 c. 12

Calcutta, 1 t. 36

Phosphate—
Martinique, 15 t. £34

Phosphorus—
Melbourne, 8 c. £84

Adelaide, 1 cs. 10

Potash—
Boston, 7 pks. £47

Melbourne, 1 t. 8 c. 59

Potassium Bromide—
Demerara, 1 cs. £10

Potassium Chlorate—
Algoa Bay, 10 c. £18

Madras, 19 34

M. Video, 5 9

Potassium Cyanide—
Madras, 100 cs. £630

Dantzig, 7 c. 28

Potassium Prussiate—
Genoa, 2 cks. £40

Philadelphia, 17 263

Salicylic Acid—
Sydney, 2 cs. £84

Boston, 1 12

Saltpetre—
St. Nicholas, 1 t. 12 c. £32

Melbourne, 2 45

Algoa Bay, 1 2 27

Sheep Dip—
Dunedin, 5 t. 7 c. 20 cks. £356

Cape Town, 125 cs. 609 dms. 320

Christchurch, 300 725

M. Video, 14 10 260

Pt. Elizabeth, 14 10 260

Natal, 8 5 950 394

Soda Crystals—
Colombo, 2 t. 15 c. £8

Sodium Bicarbonate—
Natal, 20 pks. £14

Algoa Bay, 5 t. 35

Sodium Bisulphite—
Boston, 5 bds. £11

Sodium Carbonate—
Fremantle, 1 t. £14

Strontium Nitrate—
Madras, 14 kgs. £18

Sulphur—
Algoa Bay, 100 kgs. £49

Sulphur Dioxide—
Melbourne, 24 cs. £300

Sulphuric Acid—		
Natal, 20 cs.		£21
Superphosphates—		
Martinique, 160 t.		£560
Tartaric Acid—		
Fremantle, 10 c.		£68
Cape Town, 2		13
E. London, 6 cks.		17
Sydney, 1 t.		116
Algoa Bay, 1		5
Melbourne, 5		27
Adelaide, 1 10		165

LIVERPOOL.

Week ending December 23rd.

Acetic Acid—		
Lisbon, 1 t. 13 c.		£11
Albumen—		
New York, 1 t. 1 c.		£25
Boston, 3 10		75
Alum—		
Alexandria, 7 t.		£35
Piræus, 3 5 c.		15
Cape Town, 1		5
Alum Cake—		
Havana, 7 t. 1 c.	2 q.	£25
Ammonium Carbonate		
Hamburg, 1 t. 12 c.		£45
Antwerp, 10		27
Santander, 10		15
Havana, 12 2 q.		16
Leghorn, 3		84
New York, 1 14		58
Paris, 15 1		25
Ammonium Chloride—		
Vera Cruz, 2 c.	2 q.	£5
Philadelphia, 5 t. 7	1	186
Rio de Janeiro, 11		19
Santander, 19		20
Leghorn, 12		21
Genoa, 6		11
Samsoun, 1		33
Trieste, 1		33
Messina, 10		75
Ammonium Sulphate—		
Santos, 20 t. 7 c.	4 q.	£155
Madeira, 2		15
Las Palmas, 10 3		82
Valencia, 127 10	1 q.	1,036
N. Orleans, 50		174
Gd. Canary, 50 10		483
New York, 120 15		1,007
Arsenic—		
San Francisco, 2 t. 12 c.	2 q.	£62
Barium Binoxide—		
Melbourne, 10 c.		£20
Bleaching Powder—		
Baltimore, 65 cks. 75 bxs.		
Lombay, 8 cs.		
Boston, 340		19
Calcutta, 56		70
Genoa, 70		108
Naples, 108		124
Newcastle, 117		28
Newport News, 124		155
New York, 117		11
Paris, 28		11
Philadelphia, 155		11
Shanghai, 1 t. 11 c.	1 q.	£15
Boric Acid—		
Rotterdam, 1 t.		£33
Borax—		
Port Natal, 4 c.		£7
Ferrol, 5 2 1		5
Varna, 4 1		5
Antwerp, 7 t. 2		144
Hamburg, 10 16		220
Sydney, 2		40
Barcelona, 1 1		2
Stettin, 2 6		47
Dunedin, 2 10		50
Melbourne, 4		80
Carbolic Acid—		
Rotterdam, 2 t.		£102
Newport News, 13 3 c.	2 q.	246
Pernambuco, 4		19
Caustic Potash—		
Baltimore, 4 t. 3 c.		£110
Caustic Soda—		
Baltimore, 100 dms. 6 brls. 50 bxs.		
Barcelona, 2 8		73
Bari, 73		100
Bombay, 100		45
Boston, 45		4 cks.
B. Ayres, 25		15
Calcutta, 100		10
Havre, 100		10
Hio, 100		10
Kingston, 10		10

La Guayra, 44		
Newcastle, 51		
N. Orleans, 125		
New York, 209		
Penang, 50		
Philadelphia, 50		
Rotterdam, 47		
Victoria, B.C., 2		
Chemicals (otherwise unclassified)		
Verice, 1 t. 6 c.		£43
Christiana, 1		5
Konigsberg, 18		31
Rotterdam, 1		27
Ancona, 1 3		27
Marseilles, 1		27
Odessa, 1		58
Boston, 1		30
Varna, 1 10		56
Bourgas, 1		33
Philadelphia, 1 10		441
Yokohama, 2 10		65
Calcutta, 58 18	2 q.	212
Hamburg, 6		11
China Clay—		
Bombay, 80 cks.		
Lisbon, 6 316 bgs.		
Parnahyba, 25		
Philadelphia, 200		
Rio de Janeiro, 30		
Coal Products—		
Creosote Oil		
N. Orleans, 250 brls.		
Naphtha		
Melbourne, 20 dms.		
Copper Sulphate—		
Rosario, 8 t. 16 c.	3 q.	£164
Trieste, 4 10		79
Piræus, 4 5		5
Varna, 1 2	3	20
Nantes, 4 18		75
Genoa, 10 14		321
Rouen, 5 2	1	78
Leghorn, 5 1		81
Bathurst, 5 5	3	27
Ancona, 14 8		257
Bari, 29 3	1	474
Bordeaux, 7 1	3	116
Copperas—		
Talcahuano, 2 t. 17 c.	3 q.	£6
Dunedin, 4 15	2	11
Valparaiso, 2 15		5
Disinfectants—		
Pernambuco, 6 t. 5 c.	3 q.	£3
Bombay, 6 t. 5 c.		64
Sierra Leone, 3 cks.		5
Calcutta, 3 cks.		9
Dried Blood—		
Bordeaux, 9 t. 17 c.	1 q.	£37
Guano—		
Seville, 9 t. 16 c.		£63
Iron Oxide—		
Paris, 3 t. 18 c.		£29
Magnesia—		
Bordeaux, 41 cs.		
Manure—		
Las Palmas, 5 t.		£14
Gd. Canary, 5 12 c.		44
Marseilles, 12 6	2 q.	65
Oxalic Acid—		
Bordeaux, 3 t.		£39
Melbourne, 3		102
Paint—		
Acera, 1 ck. 65 kgs.		
Alexandria, 30 tins		
Asini, 30		13 dms.
Baratzen, 1 cks.		6 brls.
Beyrout, 2		6
Bombay, 2		6
Buguma, 2		6
Cienfuegos, 2		6
Corinto, 5		6
Ferrol, 3		6
Havana, 1 10		6
Lagos, 10		6
Manaos, 150		6
Mayaguez, 3		6
M. Video, 38		6
N. Orleans, 120		6
Port-au-Prince, 3		6
Rio de Janeiro, 10 cs. 210 dms.		
St. John's Nfld., 250 kgs.		
San Juan, 250		
Santiago, 2		
Santiago de Cuba, 4		
Singapore, 8		
Painters Colours—		
Alexandria, 10 kgs.		
Bombay, 20 cks. 223		
B. Ayres, 27 64 cks.		2 brls.
New York, 1 4		2
Piræus, 2		2

Porto Alegre, 6 3 kgs.		
Port Said, 28 tins		
Paraffin Wax—		
Ancona, 50 hgs.		
Philadelphia, 10 cs.		
Piræus, 20		
Venice, 40		
Phosphorus—		
Hio, 1 t.		£360
Picric Acid—		
New York, 1 t. 2 c.		£105
Potash—		
B. Ayres, 8 c. 2 q.		£5
Potassium Bichromate—		
Smyrna, 5 t. 3 c.	3 q.	£206
Potassium Chlorate—		
Hio, 10 t.		£140
Shanghai, 2 10 c.		81
Kobe, 2		90
Genoa, 1		40
Philadelphia, 2 10		94
Hamburg, 1 7		14
Ghent, 1		34
Lisbon, 5		150
Gothenburg, 3		104
New York, 21 5		182
Potassium Nitrate—		
Las Palmas, 2 c.	3 q.	£3
Potassium Prussiate—		
Genoa, 2 t. 10 c.		£154
Salt—		
Acera, 12 t. 10 c.		
Akassa, 359 7		
Antwerp, 105		
Benin, 6 5		
Boston, 60		
Buguma, 44 15		
Burubi, 304		
Cape Town, 25 cs.		
Christiana, 15		
Ghent, 60		
Gibraltar, 100		
Melbourne, 100		
N. Orleans, 170		
Newport News, 3-3 15		
New York, 145		
Old Calabar, 100		
Para, 225 13		
St. John N.B., 100		
San Francisco, 300		
Sapeli, 6 5		
Salt Cake—		
Baltimore, 90 t. 15 c.		£162
Leghorn, 100		146
Saltpetre—		
Para, 8 t. 15	2 q.	£6
Pernambuco, 1 2		227
Sydney, 5 2		24
Cartagena, S.A., 5 2		2
M. Video, 5 6		6
Ceara, 2 15		65
Valparaiso, 6 6		134
Cartagena, N.G., 3 1		70
Sheep Dip		
Punta Arenas, 11 t. 4 c.		£300
B. Ayres, 36 12		834
Rangoon, 6 1 q.		8
Soap—		
Alexandria, 15 bxs.		
Algoa Bay, 980 25 bdl.		25 cs.
Arad, 250		
Bakana, 250		
Bombay, 250		
Calcutta, 250		
C. C. Castle, 150		
Cape Town, 500		
Constantinople, 200		
Curacao, 100		
Delagoa Bay, 1,000		
Dominica, 35		
Freemantle, 1,600		
Gibraltar, 250		
Havre, 250		
Kingston, 250		
Las Palmas, 2,750		
Malilla, 250		
Mosel Bay, 250		
N. Orleans, 250		
New York, 1,000		
Old Calabar, 1,000		
Para, 500		
Philadelphia, 63		
Piræus, 3,501		
Pt. Natal, 40 kgs.		
Port Said, 1		
St. John N.B., 200		
St. Nazaire, 100		
Salt Pond, 100		
Smyrna, 1		
Teneriffe, 25		
Trinidad, 200		
Valparaiso, 20		

Soda—		
Para, 10 cks.		
Soda Alkali—		
Alicante, 50 brls.		
Bilbao, 48		
New York, 45		
Palermo, 5		
Salonica, 35		
Soda Ash—		
Antwerp, 100 bgs		
Baltimore, 57 cks. 66 tcs.		560
Boston, 920 kgs 65		47
B. Ayres, 96		
Christiana, 10		
New York, 72 84		150
Philadelphia, 34 171		1,656
Portland, 799		
Rio de Janeiro, 100 30 brls.		
Soda Crystals—		
Bombay, 150 kgs.		
Boston, 55 cks.		150 bgs
Sodium Bicarbonate—		
Aalborg, 10 kgs. 1 ck.		
Antwerp, 30		
Barcelona, 40		
Bombay, 185 6		
Bremen, 20		
Christiana, 10		
Danzig, 20		
E. London, 71		
Halifax, 100		
Hamburg, 59		
Havana, 5		
Hong Kong, 10		
Malta, 14		
Marseilles, 65		
Naples, 59		
Newcastle, 100		
New York, 20 10 brls.		
Para, 10		
Rotterdam, 100		
Sodium Chlorate—		
Hamburg, 20 kgs.		
Rotterdam, 20		
Sodium Silicate—		
Canterbury, 20 cks.		
Kingston, 10 brls.		
Sodium Sulphate—		
Boston, 100 kgs.		
Sulphur—		
Portland, 11 t.		
Pernambuco, 7 8 c. 1 q.		£
Ceara, 9 3		
Bahia, 1 2		
Boston, 1,336 bgs.		1
Sulphuric Acid—		
Rio Grande do Sul, 19 c.		£
Superphosphates—		
Valencia, 300 t. 1 c.		£6
Bordeaux, 210 1		6
Marseilles, 27 1 3 q.		1
Varnish—		
Calcutta, 15 dms.		
Pernambuco, 1 cs.		
Vigo, 1 brl.		
Zinc Chloride—		
Bombay, 2 t.		£

MANCHESTER

Week ending December 23rd.

Alum—		
Beyrout, 10 cks.		
Larnaca, 10		
Tripoli, 20		
Aniline Salts—		
Antwerp, 5 cks. 10 tins 11 dms		
Caustic Soda—		
Alexandria, 30 dms.		
Tunis, 5 cks.		
Copperas—		
Cailla, 20 brls.		
Cottonseed Oil—		
Djerba, 15 brls.		
Tunis, 45		
Linseed Oil—		
Malta, 12 brls.		
Souise, 10		
Tunis, 28		
Paint—		
Alexandria, 10 brls.		
Tunis, 2 cks.		
Pitch—		
Cette, 10 t.		
Soda Ash—		
Beyrout, 25 brls.		

Soda Crystals—	
Alexandretta,	80 cks.
Alexandria,	100 brls.
Sodium Bicarbonate—	
Meysout,	20 kgs.
Tallow—	
Alexandria,	20 cks.
Rotterdam,	6
Tar Oil—	
Antwerp,	10 cks.

HULL.

Week ending December 19th.

Alkali—	
Hamburg,	1 ck.
Ammonium Sulphate—	
Gothenburg,	100 bgs.
Ghent,	1,189
Leghorn,	200
Benzol—	
Rotterdam,	48 cks.
Bleaching Powder—	
Helsingfors,	46 cks.
Stettin,	88
Caustic Soda—	
Antwerp,	1 dm.
Chemicals (otherwise undescribed)	
Bordeaux,	20 cs.
Constantinople,	300 cks.
Copenhagen,	20
Christiania,	21 3 5 pks.
4 btl.	
Gothenburg,	76 31 kgs.
Genoa,	73
Hamburg,	26 39 20
Konigsberg,	2 20
Lisbon,	5
New York,	25
Naples,	7 4
Rouen,	30
Rotterdam,	9 64
Stockholm,	15 2 50
Stettin,	107 pks.
Cottonseed Oil—	
Antwerp,	721 c.
Amsterdam,	799
Christiansand,	21
Constantinople,	172
Christiania,	13
Dunkirk,	24
Marseilles,	7,287
Rouen,	35
Rotterdam,	618
Stettin,	616
Hamburg,	142
Creosote—	
Hamburg,	10 cks.
Dyestuffs (otherwise undescribed)	
Bremen,	20 cks.
Boston,	9 3 kgs.
Constantinople,	4 cs.
Christiania,	30 bls.
New York,	10 cks.
Stettin,	120 bgs.
Linseed Oil—	
Antwerp,	187 c.
Amsterdam,	174
Christiansand,	87
Constantinople,	37
Christiansund,	64
Christiania,	249
Drontheim,	85
Dunkirk,	14
Ghent,	7
Hamburg,	69
Rotterdam,	34
Stavanger,	74
Painters' Colours—	
Antwerp,	25 cks. 1 cs. 6 pks.
13 dms.	
Amsterdam,	2
Bremen,	1 4
Christiansund,	77
Copenhagen,	1 1 crt.
Christiania,	20
Dunkirk,	1 68
Gothenburg,	8 2 cs.
Ghent,	10
Genoa,	40
Leghorn,	10
Marseilles,	23 1
New York,	10
Rouen,	4
Rotterdam,	3 2
Stettin,	12
Pitch—	
Antwerp,	151 t.
Dunkirk,	75
Ghent,	5 cks.
Leghorn,	105 t.

Salt—	
Copenhagen,	5 t.
Soap—	
Antwerp,	13 bxs.
Tallow—	
Genoa,	28 cks.
Tar—	
Antwerp,	7 cks.
Dunkirk,	61
Hamburg,	8
Rotterdam,	3
Varnish—	
Amsterdam,	1 ck. 3 cs.
Ghent,	2 1 1 dm.
Hamburg,	17 1
Marseilles,	4

GLASGOW.

Week ending December 24th.

Alkali—	
Yloilo,	5 t. 16½ c.
Alumina—	
Rouen,	£21
Ammonia (Liquid)—	
Hong Kong,	£30
Ammonium Sulphate—	
France,	5 t. ¾ c.
Mauritius,	253 10½
Hamburg,	50 11
Baltimore,	57 3
Philadelphia,	99 18¾
Barbadoes,	50 17¼
Demerara,	197 5
St. Heliers,	25
Valencia,	223 11
Bleaching Powder—	
U.S.A.,	6 18 c.
Valparaiso,	2 4½
Rouen,	5 10¼
Boracic Acid—	
Gothenburg,	£30
Castor Oil—	
Sydney,	3 t. 15 c.
Chemicals (otherwise undescribed)	
Christiania,	£6
China Clay—	
Bahia,	8 t. 10¼ c.
Chloroform—	
Bombay,	£23
Coal Products—	
Aniline Colours	
U.S.A.,	£181
Naphtha	
France,	£80
Paris,	50
Rouen,	50
Pitch	
U.S.A.,	£53
Bombay,	45
Tar	
Penang,	£100
Singapore,	145
Bombay,	92
Tar and Pitch	
Calcutta,	£215. 15s.
Madras,	31 18
Coal Products (otherwise undescribed)	
Rotterdam,	£1,161
Copper Sulphate—	
Rouen,	72 t. 13 c.
Copperas—	
Bombay,	£57
Dyestuffs (otherwise undescribed)	
Covilha,	£41
Lisbon,	32
Rotterdam,	£7. 10s.
Gelatine—	
New Brunswick,	£73
U.S.A.,	196
Linseed Oil—	
B. Ayres,	2 t. 8 c.
Sydney,	6 14½
Yloilo,	2 10
Cape Town,	1 2½
Canada,	8 14¾
Logwood—	
Lisbon,	3 t. 4 c.
Magnesium Sulphate—	
Sydney,	£22. 10s.
Manganese—	
Basle,	£105
Manure—	
Penang,	50 t. 2 c.
St. Heliers,	44 ½
Paint—	
Bombay,	£34
Colombo,	32

Gorontalo,	20
Manila,	68
Menado,	30
M. Video,	72
Sydney,	qty.
Yloilo,	33
B. Ayres,	86
Havana,	108
Hioho,	247
Bergen,	30
Painters' Colours—	
Singapore,	15 c.
Cape Town,	£50
Chio,	qty.
Paraffin Wax—	
Arendal,	£30
Christiania,	80
Cape Town,	50
Barcelona,	221
Rouen,	20
Valencia,	63
Potassium Bichromate—	
Italy,	£222
Rotterdam,	411
Ghent,	66
Antwerp,	247
Barcelona,	370
Hioho,	598
Rouen,	658
U.S.A.,	1,275
Potassium Sulphate—	
St. Heliers,	7 t.
Sheep Dip—	
Rosario,	4 t. 9 c.
H. Ayres,	19 15¼
Soap—	
Barcelona,	2 t. 8½ c.
Bombay,	3 9½
Puerto Cortes,	2 10
Sodium Bichromate—	
Ghent,	3 t. 11 c.
Barcelona,	11 2½
Rouen,	15 9½
U.S.A.,	12 11
Starch—	
Lisbon,	£46
Sulphur—	
Trinidad,	6 t. ¾ c.
Sulphuric Acid—	
Madras,	£77
Penang,	23
Superphosphates—	
St. Heliers,	304 t. 17½ c.
Tallow—	
Oporto,	1 t. 1 c.
Rotterdam,	13
Treacle—	
Gothenburg,	28 t. 11½ c.
Mossel Bay,	2 10
Christiania,	28 13
Christiansand,	2 10
Cape Town,	1 10
Natal,	10 8
Aalesund,	24 13
Bergen,	48 1
Turpentine—	
Yloilo,	£57
Varnish—	
Manila,	qty.
Yokohama,	£82
Zinc Ashes—	
Rotterdam,	37 t. 11 c.

TYNE.

Week ending December 19th.

Alkali—	
Amsterdam,	15 t. 15 c.
Antwerp,	11 15
Riga,	6 15
Rotterdam,	4 6
Alum Waste—	
Odense,	9 t. 19 c.
Alumina Sulphate—	
Lisbon,	15 t. 1 c.
Antimony—	
Hamburg,	7 t. 10 c.
Riga,	1
Barium Carbonate—	
Antwerp,	21 t. 9 c.
Riga,	5
Barytes—	
Reval,	12 t. 11 c.
Bleaching Powder—	
Amsterdam,	13 t. 7 c.
Reval,	20 4
Antwerp,	20 3
Hamburg,	1 1
Rotterdam,	36 15

Caustic Soda—	
Reval,	48 t. 7 c.
Antwerp,	9 17
Hamburg,	6 13
Riga,	14 13
Seville,	33 17
Rotterdam,	1 4
Copenhagen,	3 10
Lisbon,	10 3
Guano—	
Jersey,	65 t. 2 c.
Guernsey,	3
Litharge—	
Hamburg,	1 t. 4 c.
Riga,	3 2
Copenhagen,	11
Lisbon,	1 8
Magnesia—	
Reval,	2 t. 10 c.
Hamburg,	18
Manure—	
Guernsey,	12 t.
Jersey,	12 9 c.
Paint—	
Antwerp,	2 t.
Soda—	
Antwerp,	5 t. 3 c.
Hamburg,	2 10
Randers,	30 12
Rotterdam,	25 15
Sodium Hyposulphite—	
Antwerp,	2 t. 1 c.
Sodium Prussiate—	
Reval,	5 t.
Sodium Sulphate—	
Antwerp,	50 t. 2 c.
Moss,	400
Sulphur—	
Antwerp,	5 t.
Riga,	18
White Lead—	
Hamburg,	4 t. 4 c.
Lisbon,	5
Zinc Ashes—	
Rotterdam,	7 t. 4 c.

GOOLE.

Week ending December 16th.

Alkali—	
Amsterdam,	5 dms.
Antwerp,	12 cks.
Benzol—	
Boulogne,	25 cks.
Rotterdam,	98
Chemicals (otherwise undescribed)	
Boulogne,	1 ck.
Harlingen,	10
Coal Products (otherwise undescribed)	
Amsterdam,	5 cs. 20 pks.
Boulogne,	7 cks.
Ghent,	6
Hamburg,	40
Rotterdam,	19
Colours—	
Ghent,	1 ck.
Harlingen,	1 cs.
Rotterdam,	4
Dyestuffs (otherwise undescribed)	
Ghent,	6 cks.
Hamburg,	40
Rotterdam,	9 1 cs.
Manure—	
Antwerp,	450 bgs.
Ghent,	381
Hamburg,	479
Pitch—	
Antwerp,	541 t.

GRIMSBY.

Week ending December 19th.

Chemicals (otherwise undescribed)	
Antwerp,	1 pk.
Dieppe,	4 cks.
Hamburg,	25 cs.
Savanna,	11
Rotterdam,	1
Coal Products (otherwise undescribed)	
Dieppe,	55 cks. 1 cs.
Rotterdam,	56
Colours—	
Antwerp,	1 ck. 3 cs.
Hamburg,	3 1 pk.
Malmo,	3
Soap—	
Savanna,	1 cs.
Varnish—	
Dieppe,	9 cks.

PRICES CURRENT.

WEDNESDAY, DECEMBER 30TH, 1894

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	& 8/9
" Glacial	"	4/7-	
Arsenic S.G., 2000°	"	1	4 0
Fluoric	per lb.	0 0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0	10
" (Cylinder), 30° Tw.	"	0 3	0
Nitric 80° Tw.	per lb.	0 0	1½
Nitrous	"	0 0	1½
Oxalic	nett	0 0	3½
Phosphoric, 1750°	"	0 0	11½
Picric	"	0 0	11
Sulphuric (fuming 50 %)	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" 150°	"	1	5 0
" (free from arsenic, 145°)	"	1	7 6
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0 1	2½
Tartaric	"	0 1	1
Arsenic, white powdered	nett	per ton	24 0 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	5 0
Aluminoferic	"	2	5 0
Aluminium (Ingot metal 98/99½ %)	nett	per cwt.	8 0 0
Ammonia, Anhydrous	per lb.	0 1	4
" 880=28° B.	"	0 0	2½
" =24° B.	"	0 0	1¾
" Carbonate	nett	"	0 3
" Muriate	per ton	20	0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	37/-	& 35/-
" Nitrate	per ton	33	0 0
" Phosphate	per lb.	0 0	4½
" Sulphate (grey) London	per ton	7	13 9
" (grey) Hull	"	7	12 6
Aniline Oil (pure)	per lb.	0 0	9½
Aniline Salt	"	0 0	8½
Antimony	per ton	30	15 0
" (tartar emetic)	per lb.	0 0	9½
" (golden sulphide)	"	0 0	10
Barium Chloride	per ton	7	0 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	42/6	to 65/-
Bleaching Powder, 35 %	nett	"	6 12 6
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	13	10 0
Chromium Acetate (crystal)	per lb.	0 0	6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	"	15/-	to 30/-
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20 %	nett	per lb.	0 0 7
Magenta	"	"	0 3 9
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0 0 9
Benzol, 90 %	per gallon	"	0 2 9
" 50/90	"	"	0 2 6
Carbolic Acid (crystallised 40°)	per lb.	0 0	7½
" (crude 60°)	per gallon	0 2	1
Creosote (ordinary)	"	0 0	2
" (filtered for Lucigen light)	"	0 0	2½
Crude Naphtha 30 % @ 120° C.	"	0 1	1
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	"	1	8 0
Solvent Naphtha, 90 % at 160°	per gallon	0 1	7
" Lucigen " and " Wells " Oils	"	0 0	0
Copper	per ton	49	5 0
" Sulphate	"	17	15 0
" Oxide (copper scales)	"	42	10 0
Glycerine (crude)	"	37	10 0
" (distilled S.G. 1250°)	"	70	0 0
Iodine	nett, per oz.	0 0	9
Iron Sulphate (copperas)	per ton	1	10 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	12	15 0
" Litharge Flake (ex ship)	"	14	10 0
" Acetate (white)	"	21	10 0
" brown	"	15	0 0
" Carbonate (white lead) pure	"	10	10 0
" Nitrate	"	18	10 0

	£	s.	d.
Lime, Acetate (brown) (ex ship)	per ton	4	12 6
" (grey) (ex ship)	"	8	2 6
Magnesium (ribbon and wire)	per oz.	0	2 3
" Chloride (ex ship)	per ton	2	7 6
" Carbonate	per cwt.	1	17 6
" Calcined Magne	per ton	8	15 0
" Sulphate (Epsom Salts)	per ton	2	15 0
Manganese, Sulphate	"	16	10 0
" Borate	per cwt.	2	10 0
" Ore, 70 %	per ton	3	10 0
Methylated Spirit, 61° O.P.	per g. lion	0	1 8
Naphtha (Wood), Solvent	"	0	2 8
" Miscible, 60° O.P.	"	0	2 11
Oils:—			
Cotton-seed	per ton	16	10 0
Linseed	"	17	10 0
Petroleum, American	per gallon	0	0 7
Stearine	per ton	20	10 0
Phosphorus (yellow)	per lb.	0	2 2
" (red)	"	0	2 8
Potassium (metal)	per oz.	0	3 7
" Bichromate	nett	per lb.	0 0 4½
" Carbonate, 90% (ex ship)	"	per ton	17 15 0
" Chlorate	"	per lb.	0 0 4½
" Cyanide, 98%	"	per ton	0 0 17½
" Hydrate (Caustic Potash) 90%	"	per ton	24 5 0
" (Caustic Potash) 75/80%	"	per ton	20 10 0
" (Caustic Potash) 70/75%	"	per ton	20 0 0
" Nitrate (refined)	per cwt.	1	1 6
" Permanganate	per cwt.	3	17 6
" Prussiate Yellow	per lb.	0	0 5½
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	10 0
Silver (metal)	per oz.	0	2 3½
Sodium (metal)	per lb.	0	2 1
" Carb. (refined Soda-ash) 48 %	nett	per ton	4 15 0
" (Caustic Soda-ash) 48 %	"	per ton	4 5 0
" (Carb. Soda-ash) 48 %	"	per ton	4 0 0
" (Alkali) 58 %	"	per ton	3 10 0
" (Soda Crystals)	"	per ton	2 0 0
" Acetate (ex-ship)	"	per ton	14 5 0
" Arseniate, 45 %	"	per ton	14 10 0
" Chlorate	per lb.	0	0 5
" Borate (Borax)	net, per ton	19	0 0
" Bichromate	per lb.	0	0 3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	9	0 0
" (74 % Caustic Soda)	"	per ton	8 5 0
" (70 % Caustic Soda)	"	per ton	7 2 6
" (60 % Caustic Soda)	"	per ton	6 2 6
" (pure liquor 90° Tw.)	"	per ton	3 15 0
" 77/78 % powdered (99 % hydrate)	"	per ton	13 10 0
" Bicarbonate	"	per ton	6 10 0
" Hyposulphite	"	per ton	5 5 0
" Manganate, 25%	"	per ton	15 0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	7 9
" Nitrite, 98 %	per ton	30	0 0
" Phosphate	"	12	10 0
" Silicate (glass)	per ton	4	10 0
" (liquid, 100° Tw.)	"	3	10 0
" Stannate, 40 %	per cwt.	3	2 9
" Sulphate (Salt-cake)	per ton	1	1 0
" (Glauber's Salts)	"	1	10 0
" Sulphide	"	6	15 0
" Sulphite	"	5	0 0
Strontium Hydrate, 100%	"	8	0 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 6½
" Barium, 95 %	"	0	0 4½
" Potassium	"	0	0 5½
Sulphur (Flowers)	per ton	7	10 0
" (Roll Brimstone)	"	6	10 0
" Brimstone: Best Quality	"	4	15 0
Superphosphate of Lime (26%)	"	2	15 0
Tallow	"	18	5 0
Tin Crystals	per lb.	0	0 4½
" English Ingots	per ton	62	10 0
Zinc Spelter	"	17	17 6
" Chloride (solution, 100° Tw.)	"	5	2 6

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

No. 503.

SATURDAY, JANUARY 9, 1897.

Vol. XX.

Contents.

	PAGE		PAGE
A Windfall for the Chemical Industry	17	The Pollution of the Fifeshire Leven	21
The Patent List	18	Factory Inspection in Bavaria	23
Abstracts of Latest Complete Specifications	18	Fatal Petroleum Accidents	24
Industrial Reviews of 1896	18	Trade Notes	24
Estimation of Sulphur in Cast Iron	20	Tar and Ammonia Products	24
The Letters of Faraday and Darwin	21	Miscellaneous Chemical Market	24
The Dynamite Explosion in Plymouth Sound	21	Liverpool Oil and Colour Market	25
As Others See Us	22	Report on Manure Material	25
Amalgamation in the German Cement Trade	22	The Metal Markets	25
Explosives and Chemicals in Greece	22	West of Scotland Chemicals	25
The Clayton Black Smoke Case	22	Hull Paint, Oil, and Colour Report	25
Drysaltery Sales in 1897	22	Tyne Chemical Report	25
Selected Correspondence	23	New Companies	26
		Imports	26
		Exports	28
		Prices Current	32

LATE ADVERTISEMENTS.

FOR SALE, Cheap.—One Cast Iron Tank, 65 ft. dia. by 16 ft. deep; capacity, 331,800 gallons.—For particulars and price apply to Samuel White and Sons, 60, Queen Victoria-street, London, E.C.

WANTED WORKMAN for Small Works, with knowledge of Manufacture of White Muriate of Ammonia Crystals.—Address, "A.W.C.," *Chemical Trade Journal* Office, Manchester.

OFFERS WANTED for about 1,200 tons per annum of Iron Oxide (precipitated), easily soluble in Acids. Average analysis—70/85% Ferric, and 5/10% Ferrous Oxide.—Address, "Ferric," *Chemical Trade Journal* Office, Manchester.

Notices.

All communications for the *Chemical Trade Journal* should be addressed, and Cheques and Post Office Orders made payable to—

DAVIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

The Terms of Subscription, commencing at any date, to the *Chemical Trade Journal*,—payable in advance,—including postage to any part of the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Special Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

30 Words and under	2s. 6d. per insertion
Each additional 10 words	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

30 Words and under	1s. 6d. per insertion
Each additional 10 words	0s. 3d.

Trade Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

A WINDFALL FOR THE CHEMICAL INDUSTRY.

THE year has not opened so badly for the chemical industry in one way. In the closing months of 1896 a somewhat heated controversy on the question of technical education was in progress, and numerous methods of lifting the chemical industry out of the quagmire in which it was supposed to be stuck were suggested. Some of these were rational, some ridiculous.

A certain section of the controversialists seemed under the impression that the British chemical industry had been well nigh done to death, by the untiring energy with which Germany has been pushing its way to the front in most branches of the trade. On the other hand, more dispassionate critics saw plainly what had been the cause of much of the trouble from which the industry has lately been suffering. Better education, though not a panacea for all our ills, is undoubtedly the secret of much of Germany's success. The only crux is the interpretation of the word "better."

After all, however, many seem to have at last come to the conclusion that to encourage pure research in chemistry and physics is encouraging technological advancement. But research work is very expensive, and the funds available for this class of work have been none too plentiful in the past.

This difficulty, however, has now been largely obviated. The realisation of the Davy-Faraday Laboratory has been the first step towards providing a permanent home for research workers, and now the late Dr. Alfred Nobel has virtually left the whole of his fortune to be devoted to the furtherance of scientific research. As the capital fund to be disposed of will amount to nearly two millions sterling, it will be the fault of our chemists, and not their misfortune, if we are not able, in the near future, to assert once more our right to a foremost place in the field of chemical industry.

The details of the allotment of the prizes are both interesting and instructive. The benefits that they will confer are not to be limited to any one nation, but will be wholly cosmopolitan, and attainable by one and all alike. The first prize will be for the most important discovery in the domain of physics. The second for the principal chemical discovery or improvement. The third will go to the discoverer of some important departure in connection with physiology or medicine. The fourth will be the reward of the contributor of the most distinguished literary dissertation in the same field, while the last is of an entirely different nature. It will be familiar to most of our readers that the late Dr. A. Nobel made his name and fortune in connection with the development and manufacture of high explosives, and by one of those peculiar though somewhat natural mental inconcinnities, he has provided that the fifth prize shall be allotted to "Whomsoever may have achieved the most, or done the best, to promote the cause of Peace."

With regard to the perpetuity of these prizes, it is desirable to add that the international capital fund of two millions will consist of the late Dr. Nobel's realizable property, which presumably will remain fairly permanent, and the prizes will be derived from the interest, which will be divided in the manner stated above.

Thus we now have the wherewithal, an incentive, and an international home for scientific research, and we sincerely hope that these conditions will induce the commencement of a new and more prosperous epoch of the chemical industry.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Coating Steel with Copper. R. D. Burnie and W. T. Lougher. 29,251. December 21.
 Extraction of Gold and Silver from Ores. J. B. Torres. 29,284. December 21.
 Improvements in the Purification of Sewage. W. B. Bottomley. 29,288. December 21.
 Producing and Purifying Acetylene. P. de Résener and H. Luchaire. 29,301. December 21.
 Producing Manganese and Carbon Electrodes. A. Heil. 29,307. December 21.
 Permanently Protecting Streams from Pollution. J. E. Humphris and C. J. Pilm. 29,409. December 23.
 Continuous Production of Ammonia from Nitrogenous Materials. H. H. Lake. 29,455. December 22.
 Disinfectants. J. Hardwick. 29,501. December 23.
 Manufacture of Ice. G. Koser and F. Krumpf. 29,600. December 23.
 Process for Utilizing Town Refuse. J. E. Lagos. 29,607. December 23.
 Treating China-Grass, etc. H. Lane. 29,727. December 24.
 Rubber Substitute. J. Ellershausen. 29,805. December 28.
 Improved Apparatus for Concentrating Sulphuric Acid. T. G. Webb. 29,884. December 29.
 Smoke-Consuming Furnaces. H. H. Lake. 29,942. December 29.
 Apparatus for Producing Ozone. J. Y. Johnson. 29,966. December 29.
 Smoke-Consuming Apparatus. E. Smith. 29,996. December 30.
 Sterilizing Water by Electricity. E. Andreoli. 30,023. December 30.
 Devulcanizing Caoutchouc Waste. P. A. Duprez. 30,047. December 30.
 Recovering Zinc from the Gases given off in Distilling the Metal. A. M. Clark. 30,152. December 31.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

These abstracts are specially prepared for the Chemical Trade Journal, and ALL RIGHTS of publication are RESERVED. This is the earliest series of abstracts of Chemical and allied patents accessible to the public.

A Process of Manufacturing Varnish. C. W. Jurany, Veitgasse 4, Vienna, Austria. Eng. Pat. 23,302. December 4, 1895.

Sulphide of zinc is mixed with barium sulphate, and the two worked into a paste with pure alcohol, the excess of which is then distilled off. The mixture can be coloured suitably with aniline colours while being kneaded. The mass so obtained will dissolve in benzene varnish, or mollifies in any oil varnish. Alkalized oil varnish or benzene varnish can also be used. The zinc sulphide is produced by the comparatively new "cold" process, but this is in no way part of the patent.

Improvements in the Manufacture or Production, Electrolytically, of Coatings composed of Earthy Oxides. R. Langhans, 12, Elizabethstrasse, Berlin. Eng. Pat. 24,546. December 21, 1895.

This patent differs but little from that of No. 23137/95 abstracted in the *Journal*, No. 502, p. 4. A water soluble hydroxide of an earth metal is used, and the solution electrolysed. More attention is paid to the basis of the mantel, which may be of platinum, gold, carbon, or other conductor. Particulars are also given of the subsequent calcination of the deposit, opium, quinine, and other alkaloids being added to prevent cracking during this process.

Improvements in the Manufacture of Effervescent Beverages, in the Preparation of the Materials used in the said Manufacture, and in Obtaining Useful Products therefrom. J. Hargreaves, Farnworth-in-Widnes, Lancashire. Eng. Pat. 925. January 14, 1896.

Fused bisulphate of soda and bicarbonate of soda are used as the charge for gasogenes, the former supplanting the use of tartaric acid.

Particulars of preparing and packing the fused bisulphate are given. This bisulphate is prepared by stirring pure small crystals of normal sulphate of soda into pure monohydrated sulphuric acid, heating the mixture gradually up to 270°C., and continuing the heating until the mass is in a state of quiet fusion, when the bisulphate is cast into conveniently sized sticks of rectangular shape, which are finally wrapped in lead foil. For further particulars see the *Journal*, No. 499, p. 370.

The Production of Blue Colouring Matters. W. H. Claus and A. Rén. Droylesden, Manchester. Eng. Pat. 2,705. February 6, 1896.

Various products resulting from the action of aniline on gallocyanine are known, and some patented. It has been found by the present patentees that the aniline addition products of gallocyanine, formed at ordinary temperatures, yield on sulphonation useful and bright blue colouring matters. Four methods of preparing these colours are described. For particulars the specification should be consulted.

An Improved Soap Composition for Washing Flannel and the Like. C. Drummond, 106, High-street, Berwick-on-Tweed. Eng. Pat. 10,955. May 21, 1896.

This mixture or composition is made up of water, common soap, washing soda, a certain amount of yellow resin, and a little salt. The resin is crushed up and mixed with the soap, which is sliced up, and the whole dissolved in boiling water. The other ingredients are then added, and the whole stirred until cool.

INDUSTRIAL REVIEWS OF 1896.

Soap Trade.—In the month of August 1896 the price of hard soap fell to the lowest point on record in company with tallow, palm oil, and other soapmaking materials. It is interesting to notice that Sauerbeck's index number of the 45 principal commodities also reached the lowest figure of the century in the month of August, which shows that soap-making materials were accompanied in their fall by the great majority of other products. As the rise of 30s. or 40s. per ton which has taken place since August in the prices of tallow, palm oil, and some other soap materials has been accompanied by a corresponding rise in the index number of the 45 principal commodities, we may conclude that these movements have been produced by a cause affecting all products and not by an exceptionally increased or reduced production of those soapmaking materials as a group. During the year a fall in the price of soft soap has been permitted by the low prices of cotton and linseed oils, but has been checked in the cheaper varieties by the firmness of fish oils. Crude 80 per cent. glycerine, which rose in the course of last year from 15s. to 32s. per cwt., advanced during 1896 to 35s. to 36s., and is consequently now a very valuable by-product of the soap manufacture. In spite of extremely keen competition the year is generally regarded as a prosperous one, but the loss on stocks of raw materials held from the beginning of the year was in many cases serious.

A continued increase in the sale of soap in the form of small hand tablets, and a reduction in the sale of large bars is a noticeable feature of the hard-soap trade, and the soft-soap trade an actual reduction in the sale of soft soap appears to indicate that the public are finding other kinds of soap more convenient. Prices of some soapmaking materials have been as follows:—

	Jan.	Aug.	Dec.
Tallow	23s. 6d.	20s. 0d.	22s. 0d.
Palm Oil	19s. 6d.	16s. 9d.	19s. 0d.
Cotton Oil	16s. 9d.	15s. 9d.	16s. 3d.
Linseed Oil	19s. 9d.	16s. 6d.	17s. 0d.
Whale Oil	16s. 6d.	15s. 6d.	17s. 0d.
Fish Oil	12s. 6d.	12s. 0d.	13s. 0d.
F. Rosin	5s. 0d.	6s. 0d.	6s. 0d.
W. W. Rosin	7s. 6d.	6s. 6d.	7s. 6d.

White and Red Leads.—The demand for these products of lead, both for the home and export trades has during the greater part of the year, been good, encouraging the idea that the depression of past years was gradually passing away. This hopeful feeling seemed about to gain strength from the result of the late Presidential election, a home in trade being confidently expected. The boom, however, has unfortunately not come off yet, whatever may be in the future; and in regard to the articles above noted the last quarter of the year shows a decided falling off. The large Government orders for the Clyde, and the stimulus given to shipbuilding by the somewhat better rates of freights lately obtained, should bring considerable local trade, and it is quite on the cards that the present year may see a return of activity in the demand for these, as well as other materials connected with the special industries of our country.

Flint Glass.—The improvement which commenced after the middle of last year has continued, and a larger number of glassmakers have

been fully employed; but orders are now coming in slowly, as is usual near the close and opening of the year. The demand for cut, etched, and engraved glass, although greater than in 1895, has not been quite satisfactory. Workmen have been occasionally working overtime, but they have in some weeks not had a week's work. Glasscutters have been principally employed in cutting glass for electric light and special purposes, and very little table glass. The medium class of table glass, which used to be largely produced in Glasgow, is now nearly ousted by that of foreign manufacture, which by the Continental mode of blowing in moulds enables a workman to produce two or three times the number of articles in a given time than he could by forming them by the ordinary tools used by skilled glassmakers in this country by the English old system of working, besides that the moulded goods are more uniform in shape and size, and not too marked or badly sheared, as is too frequently the case with hand-made goods. The Continental mode of working is now successfully employed by two firms in England, who employ men not in the Glassmakers' Union Society. One of them, in the North of England, produces heavy and very light tumblers, and various kinds of table glass and confection jars, fish globes, and similar work, by blowing the articles in graphite moulds; and the other firm, near Birmingham, produces the light wine-glasses and other goods for engraving and etching, and heavy goods of a description for decorating by expensive cutting, and as the quality of the glass of this latter firm is superior to that of foreign make, they are enabled to obtain higher prices, and still sell under the price of hand-made English goods. One Glasgow firm is now producing roundels or bullions and sheet-glass for ecclesiastical and domestic purposes. There are specks and air-bubbles in it similar to those in the fine art Clutha glass.

Cleveland Chemicals.—The chemical trade on Teeside is being gradually developed. The salt deposits are being worked on a larger scale, and the deliveries average about 15,000 tons per month. A great quantity has during the year been sent to India and Australia. New chlorine works have been erected for the production of bleaching powder by a new process. Petroleum refining has also been introduced into the district. The export of chemicals of all kinds to December 29 reached 8,415 tons, and of basic slag 36,692 tons.

As regards the Manchester district matters have not been moving satisfactorily in the alkali branch, as is clearly shown by the export returns. Chlorate of potash has just advanced to 4½d. per lb., the price a year ago being 4½d., and chlorate of soda is 1¼d. less than it was in December, 1896. Soda crystals and bicarbonate of soda have been moving steadily and are unchanged. In the tar products branch a good business has been done, and in the main at satisfactory prices. The movements in benzole have been a leading feature. Solvent naphtha has moved well and is now firm at an advance of some 5d. per gallon upon the price a year ago. Carbolic acids also are dearer. At present crude is easing slightly, but crystals are firm, makers being fully sold for some months ahead. The wood-distilling industry has been in a depressed condition throughout the year. Moderately good prices have been obtained for charcoal, but miscible and solvent wood naphtha have been selling at extremely low figures—lower now, we believe, than they have ever been, the competition from the Continent having been very severe. Acetate of lime also has been ruling very low, having fallen steadily to a point never before touched, but has latterly recovered somewhat on account of high rates of freight stopping the importation, and stocks on this side are gradually being cleared. Prices of brown acetate in America are so low that the production is being curtailed there. In general heavy chemicals we may note specially during the year the advance of about £9 per ton in value of white powdered arsenic, caused through short supply of raw material; and the decline of about 2¼d. per lb. in values of prussiates of potash and soda, caused through over-production from gas refuse. Borax has been cheap, and there have always been sellers at below the prices of the allied makers, though latterly to a more limited extent. Green copperas is rather dearer, and seems likely to improve further, as the consumption is increasing, whilst production is apparently rather declining. Sulphate of copper was in large demand for export to the Continental vine-growing countries during the first half of the year, and is now firm at about £2 per ton higher than 12 months ago. Lead salts have been moving quietly, and fluctuations in values have been unimportant. Carbonate and caustic potash are slightly lower in price. Values of oxalic acid and bichromate of potash and soda are firmly maintained.

Sodium Nitrate.—In the first half of the year a record consumption of nitrate of soda was experienced in Europe. The price was low, and Continental growers of sugar-beet had an encouraging outlook in the rates obtainable for their produce. The season also was an early one, so that circumstances generally were in favour of nitrate being used upon a very liberal scale. The total deliveries, therefore, amounted to 691,000 tons, or 9 per cent. in excess of any previous season. Those for the second half of the year were not so encouraging, showing as they do a reduction of 18 per cent. compared with the previous year, but the reasons for this are not difficult to discover. The deliveries to

store in Harburg have hitherto been treated as consumption. Now they form part of the Hamburg stock. It is also during the autumn that inland consumers and dealers usually lay in an initial stock. This year, however, the uncertainties and not unfounded fears as to the maintenance of the combination agreement to restrict the supply operated adversely upon any buyers. The result is that less nitrate than usual has gone into the interior from September-December. With the actual fulfilment so far of the combination agreement, a more healthy feeling on this point is beginning to exist, and there are now fairly good grounds for believing that the danger of an early rupture has passed away. The actual consumption for the entire year amounts to 910,000 tons, of which the Continent has taken 805,000 tons and the United Kingdom 105,000 tons. This represents an increase of 2 per cent. on the Continent and a decrease of 10½ per cent. in the United Kingdom, as compared with the year 1895. The consumption in the United States shows a slight increase, the quantity being 115,000 tons, as compared with 110,000 tons in 1895. Values throughout the year have fluctuated more narrowly than usual, the entire variation amounting only to 7d. per cwt.

Indigo.—Consumption has been well maintained, and prices, although showing weakness at the October auctions, have on the whole kept firm. The quality of the 1895-96 crop was generally good. Ouds and Benares being especially so. Kurpahs were in very good supply, but, being in good request for both home and Continental account, fair rates were obtained. Bengals and Tirhoots have come forward in comparatively small quantities, and in consequence Ouds have met with more attention. Bombays were not much in favour, but dry leaf Mandras has been in better request, and with an improvement in quality and lighter supplies than last year, prices have stiffened. The drought is jeopardising the new crop, and should the winter rains fail the yield is expected to be shorter than for many years past. The London stock amounts to 11,473 chests, against 8,261 a year ago.

Tallow.—The market was depressed by the large stocks of colonial tallow accumulated in the London warehouses. Shipments from Australia and New Zealand were considerably less than during the previous year, and the increase in the stock here was largely due to importers refusing to meet the market during the greater part of the year, thus allowing consumers both here and on the Continent to supply themselves freely, not only from America, but also from the abundant supplies of home tallow. With the exception of a few unimportant fluctuations, prices declined until August, when a steady advance took place, until in the beginning of October prices had risen as much as they had fallen. During the last three months the demand was of small dimensions. Values declined week by week until at the close another advance had commenced. The home supply during the first eight months was very abundant, and in some months the quality melted in London alone amounted to fully 1,300 tons per week, but about the middle of August the supply fell short very suddenly, and was very light during the remaining months. The price of town tallow free on board varied from 1s. 3d. to 3s. 3d. below the market letter quotation and has averaged 2s. 3d. below. The landings for the year were 92,968 packages, deliveries 86,577, and stock has increased to 50,169 packages against 43,778 a year ago. Australian mutton is now worth 22s. compared with 23s. 6d. 12 months since, and beef 19s. 6d. against 21s. 6d.

Tanning Materials—Mimosa Bark.—There was not much stock at the beginning of the year, considerable quantities having been sold previously at a reduction to effect clearances. The early prices at the opening were, for best ground Adelaide, £10. to £10. 10s., and £1. less for moderate samples. At midsummer the markets showed weakness, the outcome of which was a reduction of 20s. to 30s., after which a slight revival took place. Current values are now, for best Adelaide, £8. 10s. Gambier has declined in value; the prices at the end of 1895 were 18s. 6d. to 19s. 6d., but in January 17s. 6d. was accepted; considerable business resulted, causing a partial reaction; afterwards a steady decline was experienced, until in August quotations showed a drop of 1s. 6d. to 2s. per cwt. Efforts were made to rally the market, but prices went in favour of buyers, and now may be quoted at 14s. 9d. for spot and a fraction less for arrival. For Valonia a dull demand prevailed during the first half of the year, causing prices to recede, until good quality Smyrna was purchased at £8. 15s. to £9, in consequence of which large transactions took place for forward delivery, and the Smyrna market advanced. This checked business; quotations, however, assisted by unfavourable reports as to the condition of the crop, advanced to £10. for good and £8. 15s. to £9. for fair quality. Lately a further rise has taken place.

AFRICAN GOLD RECOVERY COMPANY (LIMITED).—An extraordinary general meeting was called for last week at Winchester-house, for the purpose of considering, and, if thought fit, passing resolutions to wind up the company with a view to its reconstruction, but, a quorum of shareholders not being present, the chairman (Mr. McCulloch) adjourned the meeting until the 12th prox.

ESTIMATION OF SULPHUR IN CAST IRON.

AS far back as August, 1895, a paper appeared in the *Journal* of the American Chemical Society by Mr. F. C. Phillips, who now returns to the subject in a paper recently read before this same Society. In his earlier paper he dealt with the determination of sulphur in white cast iron by the evolution method, and attempted to show that the loss of sulphur by this process in such iron was due to the formation of organic sulphur compounds not oxidizable to sulphuric acid by the usual means.

By passing the gases evolved during the solution of the iron in hydrochloric acid through a heated porcelain tube it was found that the volatile organic sulphur compounds may be decomposed and nearly all the sulphur recovered by conversion into hydrogen sulphide, oxidation and precipitation as barium sulphate.

In judging of the correctness of an analytical method it has been necessary in the case of the majority of the constituents of iron to depend upon a single criterion; that method is regarded as most accurate which, being correct in its details, yields the highest percentage of the constituent sought to be determined. For it is hardly possible to add to pure iron a known percentage of sulphur, phosphorus or carbon, and test the method by a determination of the added constituent. For the determination of sulphur in iron it has been common to regard the method of oxidation and solution of the iron by nitric acid, followed by precipitation of the sulphur in form of barium sulphate as the most accurate, inasmuch that it yields results somewhat higher than those obtained by other modes of procedure.

It does not seem probable that an appreciable error could occur in the use of this method unless, in the simultaneous oxidation of the carbon and sulphur of the iron, an organic sulphur compound should be formed.

It has seemed to be of interest, however, to apply a method for the determination of sulphur by which all the constituents of the metal could be completely oxidized in a dry state and at a high temperature, in order to avoid as effectually as possible the chances of loss due to the conversion of sulphur into a volatile compound not oxidizable by ordinary means to sulphuric acid.

In searching for a method which should answer these requirements, it seemed possible that by heating the iron in the form of fine powder in presence of a mixture of alkaline carbonate and nitrate the sulphur might be oxidized directly and completely to the condition of a sulphate without affording an opportunity for the escape of a trace of sulphur in some intermediate volatile or soluble compound. Accordingly an experiment was tried in the following way:—

An iron containing its carbon in the combined form was melted in a crucible and poured while fused into water. The granulated metal was crushed in a steel mortar to an extremely fine powder. The powder so obtained was sifted through bolting sheeting.

Two and one-half grams of the sifted iron were mixed with ten grams of a mixture of equal parts of sodium nitrate and carbonate in a platinum crucible. The crucible was covered and heated over a Bunsen burner. At a red heat a sudden and rather violent reaction occurred, and having been begun was easily maintained with very little aid from the burner flame. The reaction appeared to be complete in a few minutes. After heating for a half hour the crucible was cooled and its contents softened in water. A residue of a reddish brown powder, consisting of ferric oxide with a little ferrous oxide, was obtained. This residue was found to contain no sulphuric acid, and on digesting with hydrochloric acid dissolved without effervescence, showing that none of the particles of the original iron had remained unoxidized. From the results of this experiment and others which need not be detailed here, it seemed to be possible to oxidize finely divided iron so completely by heating with sodium carbonate and nitrate, that its sulphur might be converted quantitatively into sulphuric acid.

The mixture of sodium carbonate and nitrate, although tending to oxidize finely divided iron, seems to exert a less powerful action upon the carbon contained in the iron, and this carbon may appear as a black residue after the fused mass has been softened and extracted by water and the ferric oxide dissolved in hydrochloric acid.

It seems to be important for the success of the method that in the oxidation of the iron the carbon should also be nearly or completely oxidized, for if the carbon remained unburned a portion of the sulphur might escape oxidation. In general it may be said that the order of oxidation of these three elements by the method used is as follows:—1, iron; 2, carbon; 3, sulphur; the iron being the most easily oxidized, and the sulphur the most difficult to oxidize. This order is not exactly what we should anticipate, but it is to be remembered that unless the iron grains are fine enough to be penetrated by oxygen, and changed completely into a soft powder of ferric oxide, the sulphur and carbon have no opportunity to oxidize at all. If the iron could be used as an impalpable powder the order of oxidation would probably be different. The marked resistance of the carbon to oxidation has been frequently observed, even when using more sodium nitrate in the fusion than is

theoretically enough to completely oxidize both iron and carbon, supposing that the sodium nitrate is reduced only to nitrite in the process.

Experiments of a similar kind were tried with ferromanganese. A metal containing about 80 per cent. of manganese was used. By crushing in a steel mortar this iron was very easily reduced to a powder fine enough to pass through bolting sheeting. On heating the powder with the mixture of sodium nitrate and carbonate a most violent reaction occurred, the metal burning with a long flame, extending several inches above the crucible. In order to control the reaction it was found necessary to melt one-half of the fusion mixture to be used in the crucible and then add slowly the other half, previously mixed with the powdered metal, while stirring constantly. In this way the reaction could be easily controlled. On softening the fused mass in water it was found that the iron had been peroxidized and the manganese changed to binoxide. No trace of sodium manganate was ever formed, the solution in water being after filtration invariably colourless. No carbon was found in the residue. The oxidation of the carbon is much more easily effected in the case of iron containing a high percentage of manganese. In all the trials made the silicon of the iron was oxidized, but it was found that when the fused mass is softened in water very little silica enters into solution as an alkaline silicate, the greater portion remaining insoluble and in a flocculent form.

Experiments were then tried with a gray iron. This form of iron could not be crushed to a fine powder, and an experiment was made in reducing it from small drillings by means of a chilled iron rubber and plate, such as is ordinarily used for grinding ores. Several gray irons were tried in this way. Some could not be powdered by the method just mentioned, the grains tending to flatten instead of being crushed. Others were readily reduced, but the powder was not in any case fine enough for sifting through bolting sheeting. It was found in the case of the gray iron reduced to powder by the method of grinding, that on fusion with the mixture of sodium nitrate and carbonate, used in the preceding experiments, the graphitic carbon of this iron was more readily burnt than the combined carbon of white iron.

As it had proved to be a somewhat difficult matter to oxidize completely the carbon of the iron in the various experiments made with the fusion method, notably in the case of white iron, some trials were made in the use of sodium peroxide. This proved to be a more efficient oxidizing agent for iron and its contained carbon than sodium nitrate. For these trials a mixture was used consisting of forty-five parts each of sodium peroxide and sodium nitrate, together with ten parts of sodium carbonate.

White iron was oxidized and its carbon burnt during a fusion lasting less than ten minutes.

On heating ferromanganese with this mixture the iron was found to be completely oxidized. The carbon was burnt and the manganese was oxidized and converted into sodium manganate, yielding a deep green solution when the fused mass was digested in water.

An admixture of sodium carbonate to sodium peroxide tends in all cases to diminish its action upon finely divided iron at a high temperature and renders the process more easily controlled. It seemed to be possible to base a method for the quantitative determination of sulphur in certain kinds of cast iron upon the reactions described above.

An indispensable condition of success in the use of the method is found in the extreme fineness of the iron. In the case of white irons the fineness of the powder has been secured by crushing in a steel mortar until the powder passed through a sieve of bolting sheeting or bolting cloth.*

Some gray irons cannot be crushed or ground. To these the method is not applicable. For gray irons, however, the evolutionary method answers all requirements.

The following details are given of the method finally employed:—

1. *White iron.*—About one and one-half grams of the finely powdered and sifted metal was intimately mixed with eight grams of the sodium peroxide mixture above mentioned, or with four grams each of sodium carbonate and nitrate. The somewhat violent reaction set up on the application of strong heat to the platinum crucible was completed in a few minutes. The crucible was heated for about twenty minutes in all. After cooling the contents were softened in water, the solution decanted and the residue ground, while wet, in a mortar. The solution and residue were then digested in a beaker on the water-bath for one hour after addition of two cc of strong bromine water. The liquid was then filtered, acidulated with hydrochloric acid, evaporated to dryness to separate the small portion

* Two different materials are sold which are suitable for the sifting. One is called bolting cloth, the other bolting sheeting. The bolting cloth used in these experiments contained about eighty-five meshes to the linear inch, while in the bolting sheeting about one hundred and thirty-five were counted. The material having the smaller number of meshes is made of coarser threads, however, and yields, on account of the smaller openings, a finer powder. Bolting cloth is, on this account, better suited to the preparation of a sample of white iron for a determination of sulphur by the method described.

of silica which had entered in solution and filtered. The sulphuric acid was determined in the filtrate in the usual manner. The barium sulphate obtained was always white. If the fusion mixture contains sodium carbonate and nitrate, but no sodium peroxide, the crucible must be heated for a longer time, but a portion of the carbon of the iron may still remain unoxidized.

2. *Ferromanganese*.—In this case it is better to use a mixture of equal parts of sodium nitrate and carbonate, omitting the sodium peroxide.

Ten grams of the mixture were divided into two portions, one of which was fused in a crucible. The other portion mixed with two or two and one-half grams of the finely powdered iron was then slowly added. Although too violent combustion of the iron is to be avoided, it seems to be important, for the success of the method, that a reaction of decided intensity should occur during the fusion.

Sodium nitrate possesses an advantage over sodium peroxide in its greater purity, the former compound being readily obtainable with practically insignificant traces of sulphur.

Natural gas was the fuel used for the Bunsen Burner in heating the charges. This gas was found, by repeated experiments, not to contain a sufficient quantity of sulphur to affect the purity of the sodium carbonate when heated in a platinum crucible in the same manner as in the case of the determinations described.

The usual occurrence of sulphur compounds in coal gas would preclude its use in the application of the method.

From the experiments, the results of which are stated in the accompanying table, there seems some reason to suppose that not quite all the sulphur of the iron is converted into barium sulphate when the metal is oxidized and dissolved by nitric acid. That it has been completely recovered by the process of fusion cannot be positively asserted.

Character of iron used.	Fusion mixture employed.	Percentage of sulphur found by fusion.	Percentage of sulphur found by the method of oxidation by nitric acid.
White iron A crushed in mortar and sifted through bolting sheeting.	Contained equal parts of sodium carbonate and nitrate.	0.112	0.101
		0.112	0.098
		0.111	0.096
		0.107	0.099
		0.114	0.100
		0.114	0.102
		0.106	0.102
		0.108	0.104
		0.107	
		0.103	
Means		0.109	0.100
White iron B crushed and sifted	Contained 45 parts NaNO ₃ 45 parts Na ₂ O ₃ 10 parts Na ₂ CO ₃	0.155	0.143
		0.150	0.149
		0.130	0.143
		0.139	0.147
		0.166	
		0.156	
		0.156	
		0.161	
		0.151	
Means		0.151	0.145
Ferromanganese crushed and sifted	Contained equal parts of sodium nitrate and carbonate.	0.022	0.012
		0.027	0.013
		0.018	0.012
		0.018	0.010
		0.018	
		0.019	
		0.016	
Means		0.020	0.012
Gray iron drillings powdered by rubber and plate. Not sifted.	Contained equal parts of sodium nitrate and carbonate.	0.034	0.027
		0.030	0.030
		0.036	0.026
		0.034	0.028
		0.033	0.028
		0.034	0.022
Means		0.033	0.027

The method I have described is not proposed as a substitute for any existing method. The purpose of the present work was merely to

* The method of preparation of a sample for analysis in the case of the more brittle forms of iron, by crushing in a steam mortar and sifting, is suggested in Regnault's Elements of Chemistry, translated from the French by Berthol, 1867, p. 112.

ascertain as far as possible whether by a process of direct oxidation of the iron in a dry state a larger proportion of the sulphur could be recovered in weighable form than by the usual method of oxidation and solution in nitric acid

THE LETTERS OF FARADAY AND DARWIN.

IN connection with the enlargement of the Royal Institution Laboratories and Library, Mr. John Leighton has promised to present to the institution his collection of letters and papers of the great philosopher Faraday. They consist principally of the letters written to Edward Magrath, who may be remembered as an intimate of Faraday, having been, I believe, the second secretary of the Athenæum Club, Faraday for a short time having been the first. Michael Faraday left his personal papers to the Royal Institution, and they are now contained in a special cabinet. Mr. Leighton's letters will fill a void, as they run over a series of years of critical interest. It may be mentioned that Mr. Leighton was proposed by Mr. Faraday for the membership of the Royal Institution in 1855.

In addition to this Mr. Francis Darwin, writing to the *Times*, says:—"I am preparing to publish a supplementary series of Charles Darwin's letters. My projected volume will include a full selection from those letters of a purely scientific interest which I was unable to print in the 'Life and Letters,' as well as from any fresh material that may now be intrusted to me.

"I would therefore ask those of my father's correspondents who have not already done so to allow me to make copies of any letters of his which they possess. I venture to remind those who may be inclined to help me that letters of apparently slight or restricted interest are often of value."

THE DYNAMITE EXPLOSION IN PLYMOUTH SOUND.

A CURIOUS and startling catastrophe (remarks the *Daily Telegraph*) has occurred in Plymouth Sound, involving, we are glad to say, only a small loss of life where many were in peril of death. For some time past dredging operations have been in progress, especially between the Hamoaze and the Sound, where the bed of the channel is much exposed to the action of the tides. On the western side of the Sound lies Mount Edgumbe, and between it and Stonehouse is the narrow piece of water which forms the mouth, as it were, of the Hamoaze, itself a continuation of the estuary of the Tamar. Davenport dockyard lies further in, but its communication with the sea depends on the channel already referred to, one portion of which runs over the somewhat dangerous Crenyll reef. It was here that late one afternoon the barge Delta—technically called a driller—was engaged in boring holes for the necessary dynamite charges, and when all had been completed, and the dynamite duly inserted, preparations were made to move off to a position of safety. Unfortunately, either through some carelessness on the part of the men, or because the tide and wind were unexpectedly strong, the barge drifted back again just over the dangerous spot, and a terrible explosion blew it into atoms. Under the circumstances it is wonderful enough that any of the occupants escaped with their lives, for there were in all 47 men crowded probably very closely together on the ill-fated dredger at the time the accident occurred. According, however, to the latest accounts, only two of the crew remain unaccounted for, the others being picked up without much difficulty, and apparently unhurt by their sudden immersion in a swiftly-flowing stream. Three workmen, we learn, managed to swim to the Devil's Point, at least 200 yards away, while the remainder were rescued by steam tugs and vessels of all descriptions, whose movements were materially assisted by the electric light. The dockyard authorities, or whoever are responsible for these dredging operations, may well congratulate themselves that so alarming an event had so fortunate an issue, but we hope that very stringent inquiries will be made into the precise reasons of the disaster. Every one knows the particular form of risk to which all this kind of work is as a matter of course exposed, for it is difficult to understand how it came to pass that in a perfectly familiar channel, where the strength of currents ought to be well ascertained and thoroughly estimated, a barge could possibly get so much out of hand as to drift aimlessly back to the very point of danger.

REMOVAL OF ORGANIC MATTER FROM POTABLE WATERS.—By a typographical slip in last issue Dr. Redman's treatment as described in the report of the Society of Chemical Industry (Scottish Section) was made to read "five per cent. of alum per day" instead of "five cwt. of alum per day." The alum in the first instance was applied to the burn water before entering the reservoir, the method being that of a rack framework through which the current had to pass.

AS OTHERS SEE US.

IN reviewing the present position of the petroleum flash-point question, and some of the recent evidence of this matter, *The Medical World* has, we find, been kind enough to commend our endeavours by the following:—"Some time ago *The Lancet* published what purported to be the results of a special investigation into the causes of the great loss of life and property through lamp explosions. *The Chemical Trade Journal*, and *Oil, Paint, and Colour Review*, which, on such a question, can claim to speak with as high, if not a higher, authority than *The Lancet*, has flatly contradicted the results of the alleged *Lancet* Commission, and declares that the sacrifices of life and property are occasioned more by the refuse American oils shipped to England than by cheap lamps as alleged by *The Lancet*. The American oil refiners have themselves admitted that 40 per cent. of the product is of too poor and dangerous a quality to be sold in the United States, so that unless they can ship it to this country or to other countries, it must be wasted or subjected to processes which would increase its cost by 1d. to 1½d. per gallon. Meanwhile, almost every day brings its terrible record of torture or death like the following recent occurrences:—

"Explosions by low-flashing American oils caused fires on Dec. 14, at 51, Boscombe-road, Shepherd's-bush; 2, Inverness-gardens, Kensington; and at 45, Crispin-street, Spitalfields. From the latter place Rachel Nathan, 12, had to be removed to the hospital. The eight-year-old daughter of Mr. and Mrs. Beach, of Tyrrell street, Bethnal Green, was burnt to death a few days ago by a lamp explosion.

"A fire was discovered to have broken out at 49, Crossfield-lane, High-street, Deptford, and Amelia Leevies, 55, was burnt to death. The upsetting of a lamp was the cause of a fire at 81, Blair-street, Bromley. Edward Blake was burnt on the hands.

"In the face of facts like these deaths, it is important that the truth upon the question should be thoroughly understood, and a remedy discovered. *The Chemical Trade Journal*, therefore, directly disputed the results of the alleged *Lancet* Commission, and proved its attack upon the scientific value of *The Lancet's* assertions by facts which that journal has possibly found it convenient to ignore; at any rate, it has been unable as yet to answer them. . . .

"It is a sorry position for *The Lancet* to occupy, and the Select Committee of the House of Commons, when it renews its inquiries, will no doubt be able to determine the amount of credence *The Lancet* Lamp Commission merits.—*Medical World*."

AMALGAMATION IN THE GERMAN CEMENT TRADE.

NEARLY all the German cement works have formed a syndicate, the object of which is to have a fixed price, below which this article will not be sold. This step has been taken, British Consul-General Dundas (Hamburg) states, in order to prevent prices being, in consequence of competition, reduced to a level which, however it might suit customers, is not to the interests of the pockets of the manufacturers. Notwithstanding the reported unfavourable rates of prices and the competition, the production was greater than in the preceding year, and in spite of the competition and the low prices, good and fair dividends seem to have been the result of the year's work. The total quantity exported by sea amounted to 3,993,540 cwt., of the value of £384,500., being a very large increase in volume but a decrease in value compared with 1894. Of the total quantity exported the United States took half, and the next largest customers were the American States on the Pacific, Brazil, and Australia, while considerable quantities went to the different parts of Africa. The largest European customer was Norway.

EXPLOSIVES AND CHEMICALS IN GREECE.

THE Statistical Bureau of the Ministry of Finance has published a brochure reviewing the gunpowder, dynamite, and incidental chemical industry of Greece.

Of late years the manufacture has been much improved and perfected, and is developing largely as a consequence of the introduction of factories furnished with the best machinery and organised according to the new systems created by the progress of the chemical industry. To the production of powder has been added the production of dynamite, sulphuric acid, &c. There are at present in the country 29 powder factories, of which 3, the most important, are on the outskirts of Athens, 15 at Dimitzani, one at Argos, and 10 in Phthiotide—of which only 5 are in operation. The largest powder factory is that owned by a Greek joint-stock company, and it also produces the largest quantity of dynamite, together with sulphate of iron and sulphuric acid, according to the requirements of native industries. Two other factories produce

dynamite only. One belongs to M. Th. Vannitchech, and the other which is more important—to the Franco-Hellenic Explosives Chemical Products Company, whose head office is in Paris. A year ago a cartridge factory was founded in the neighbourhood of Athens; it produces more than a million cartridges for sporting military purposes, together with a great quantity of gun wads. The annual production of powder of all kinds and for all purposes is 675,000 cwt., or 864,000 kilograms; that of dynamite is 90,000 cwt., or 115,200 kilograms. The factories can increase their production according to demand. Most of the production is taken for home consumption, the rest is exported. The official statistics show that imports of these substances have yearly fallen off. Raw materials have, however, been imported, with the exception of a small quantity furnished by the island of Milo. The total number of male hands employed in all the factories is 200; that of female hands, who are engaged in preparing cartridges, is 60. The males are paid a daily wage of 2 dr. to 3 dr. 50; females, 1 dr. 50 to 2 dr. In accordance with a Royal Ordinance a factory of this kind can be started without obtaining Government authorisation. The factories are under the supervision of a Special Committee constituted by the Minister of the Interior.

THE CLAYTON BLACK SMOKE CASE.

ON Wednesday afternoon, Mr. Headlam, the Manchester stipendiary magistrate, was occupied a considerable time in the determination of an application for an order against the Clayton Aniline Company to abate what was alleged to be a nuisance arising out of the emission of black smoke from one of the chimneys of their works. Mr. Rhoades, instructed by Mr. Miller (Corporation solicitor), appeared in support of the application, and the firm was represented by Dr. Pankhurst, instructed by Mr. Rowlands. The application was before the court some time ago, and was adjourned till Wednesday for the purpose of seeing whether the emissions complained of ceased. Mr. Rhoades called further evidence to show that there had been further emission of black smoke. Dr. Pankhurst, in opposing the order being made, urged that the Corporation notice to abate should specify the works necessary to bring about the abatement, and contended that there was no known appliance which would do away with black smoke in the course of intermittent firing requisite in certain chemical operations. Mr. Headlam held that a nuisance had been proved, and made the order for abatement asked for. On the application of Dr. Pankhurst a writ was stated for the consideration of a higher court.—(*Vide C.T.J.*, p. 244.)

DRYSALTRY SALES IN 1897.

DURING this year the following sales of interest to the trade will be held. Most of them are held at the London Commercial Salerooms, excepting those for drugs, which take place at the Corn Exchange Hotel, Mark Lane; the tallow and oil sales are held at the Baltic, and those of india rubber and a few other articles at or other of the Brokers' Show Rooms. N.B.—The dates of the sales are those at present fixed, but may from time to time during the year be altered to suit convenience of buyers and sellers.

SHELLAC AND DRYSALTRES: Every Tuesday at 1 p.m. The first sale was held on Tuesday, 5th inst.

GUMS. *Arabic*: 14th January, 11th February, 11th March, 4th April, 6th May, 3rd June, 1st July, 29th July, 26th August, 2nd September, 21st October, 18th November, 16th December. *Paraffin*, etc.: 28th January, 25th February, 25th March, 22nd April, 2nd May, 17th June, 15th July, 12th August, 9th September, 7th October, 4th November, 2nd December.

INDIA RUBBER: Every Friday at noon. The first sale took place yesterday, 9th inst.

EAST INDIA INDIGO: The sales commence on the following dates: 25th January, 5th April, 12th July, 11th October.

GUATEMALA INDIGO: These sales will be held 8th March, 20th July, and 19th October (definite dates fixed at conclusion of East India Indigo sales).

ISINGLASS: The sales will be held at 12 noon on 12th January, 11th February, 16th March, 13th April, 18th May, 15th June, 20th July, 24th August, 21st September, 19th October, 30th November.

HORNS, BONES, ETC.: These sales are held on consecutive days at 11 a.m., deer horns and bones being taken the first day, and buffalo horns, and cow horns on the second. The dates are:—18th and 19th February, 13th and 14th May, 19th and 20th August, 11th and 12th November.

TALLOW AND OILS: Every Wednesday at 12 noon in the Salerooms, South Sea House.

Selected Correspondence.

MINERAL OIL LAMP ACCIDENTS.

(To the Editor of the Times.)

SIR,—The London County Council officer, at the recent Colburg-street inquest yesterday, rightly inferred that the vapours in the lamp were exploded by the adjacent flame, but wrongly concluded that had the lamp been of metal instead of glass there would have been no accident (*vide C.T.J.* 502, p. 8). That does not necessarily follow. Everybody knows that heat is conducted better by metal than by glass. Had the lamp been of metal the tendency of the oil to afford explosible vapours would have been increased, and, *pro tanto*, a special train of risks of fire been greater. Obviously, a metal lamp is stronger than a glass lamp, but in nearly all other respects metal is more objectionable than glass. The only satisfactory way to prevent lamp accidents is not strengthening the lamp, but employing safe oil. With safe oil every lamp is safe. You enabled me to warn the public respecting unsafe lamp oils in a series of letters in 1871 and 1872. Safe oils were then, have been since, and are now to be purchased; but, alas! unsafe oils are slightly cheaper.—I am, etc.,

JOHN ATTFIELD, F.R.S.

December 30, 1896.

THE POLLUTION OF THE FIFESHIRE LEVEN.

THE Kirkcaldy District Committee of Fife County Council met recently at Kirkcaldy—Mr. Joseph Budge presiding. Minutes of last meeting having been read and approved, the clerk submitted a communication from Messrs. Fraser, Stoddart, and Bailingall, W.S., agents for the Distillers' Company, with reference to the action proposed to be taken against Cameron Bridge Distillery for polluting the River Leven. It was stated therein that the company had had a report from a skilled chemist, who had examined the discharge from the works, as well as the present condition of the stream. They held that, assuming there was a pollution, the discharge from such works ceased to be an offence if the owners used the best practical and reasonable available means to render the liquid discharge harmless. They understood that the best way in which they could deal with the discharge was to treat it with lime, but they were advised that the discharge from their works was so slight compared with works further up the stream that even if their discharge did not enter the Leven there would be practically no improvement in the purity of the water so long as the pollution from the upper works was allowed to go on. The treatment of the discharge by lime would involve considerable outlay, and no one on the river would be benefited unless the water before it reached Cameron Bridge was purified. In intimating the willingness of the company to adopt the best practical means of rendering the discharge harmless, their adoption was conditional on the County Council enforcing the Act against polluting works above stream. The company were also advised that if the discharge was an offence, it was not of such a character as to amount to a contravention of the Public Health Act. The Chairman thought that it was no excuse for them that because others were doing wrong they should be allowed to continue. The clerk was of opinion that the communication from the Distillers' Company contained an admission that they were not availing themselves of the best practical means to prevent the pollution of the stream. The District Committee had taken the opinion of eminent counsel, and he advised that they should take action against one of the worst offenders. They had accordingly fixed upon Cameron Bridge Distillery, and it was now for the committee to decide what further action should be taken. Provost Whyte, Leven, did not think they should dilly-dally with the subject any longer, but at once proceed. After some further discussion, the clerk was instructed to write the company, stating that the committee looked to them to have the discharge from their works purified before being admitted into the stream, otherwise the committee would take action against them.

PETROLEUM FATALITY.—A servant girl at Croydon has been burnt to death by the upsetting of a lamp, by the light of which she was reading in bed.

HERMAND OIL COMPANY (LIMITED).—The annual meeting of the shareholders of this company was held last week in Lyon and Turnbull's Rooms, Edinburgh, the chairman, Mr. David Stewart, presiding. The annual report was read and approved of. After a long discussion the policy of the directors in keeping the works closed until there is an improvement in the trade was unanimously homologated. Mr. William Logan, coalmaster, Polmont, was re-elected a director, and Mr. James Ross, sen., Leith, was appointed a director of the company.

FACTORY INSPECTION IN BAVARIA.

A SUMMARY of the latest reports of the Bavarian factory inspectors is contained in a recent report on Bavarian trade from the British Legation in Munich. It seems that the relations between the inspectors and the employers, as well as between them and the workpeople, are improving; but the inspectors doubt whether their good offices will ever be used at the factories in disputes between masters and men, although the men frequently forward complaints to the inspectors, and, generally, begin to understand that inspection is really an advantage to them. The inspectors complain of the manner in which individual capacity for the work allotted (*e.g.*, carrying heavy weights) is disregarded both by employed and employers, of the carelessness shown in the employment of young hands in dangerous work, and of the hours of work being frequently too long. On the whole, the condition of the workshops is becoming more satisfactory, increased attention is being paid to the regulations, and the health of the workers accordingly is better. In all 26 cases of special illness caused by certain employments, such as phosphorus poisoning, lead colic, etc., came under the notice of the inspectors. Much remains to be done in hygienic improvements, though in the matter of ventilation and lighting much has been done. The inspectors find that employers are much less inclined to assist in promoting hygienic measures than in preventing accidents, while it is only the better educated amongst the workpeople themselves who support efforts in this direction. In the case of the looking-glass industry at Fürth, in Mittelfranken, there were, in 1888, in the factory there, absences by the workpeople on account of mercurial poisoning amounting to 1,680 days, whereas for some years past owing to the discovery of a substitute for quicksilver in the work this illness has entirely ceased. The revival in trade has led to the increased employment of women and children, and the inspectors state that the increased employment of so-called protected workers often involves breaches of the law. The protection of women and juvenile operatives has not been found to exercise any unfavourable influence on the business interests of their employers, although it is a source of annoyance and inconvenience to them. The hours of labour in factories were, as a rule, 11 to 12 for machine workers, 10 to 11 for hand workers. The inspectors call special attention to the excessive length of shifts in industries worked on the shift system, also to the long hours of work. The regulations for Sunday rest have not been long enough in operation to test their efficacy, but the working people as a rule seem to have experienced benefit from them. Employers showed increased disinclination to extend the period of notice of dismissal of workmen. The condition of a large proportion of the artisans' dwelling-houses remains unsatisfactory; in general, the domestic conditions of the working classes underwent little change, though such change was, if anything, for the better. Benevolent institutions started by the employers are viewed by the workpeople with distrust, partly from suspicion of the employers' intentions and partly because the workmen are looking for a more direct participation in trade profits.

METHYLATED SPIRIT SOLD AS WHISKY.—A Blackburn hawker, Thomas Parkinson, was recently charged at Darwen with hawking and selling methylated spirit. The evidence showed that the prisoner purified the spirit, and had for the last two years been selling it as home-made whisky. Several married women deposed to having regularly bought the stuff from the prisoner, one stating that she had had a pint every week for the last six months. The prisoner, who had been convicted of a similar offence at Bolton three years ago, was fined in all £52 and costs.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.—The prizes gained by the successful students at this college were distributed recently by the principal, the Rev. J. B. McClellan. The following are the chief items of the class list:—Honour diploma of Membership: Lord Charles Kennedy, Culzean Castle, Ayr, N.B. (not qualified for the gold medal through failure to comply with a prescribed condition); John Roy Sim, Newtyle, Coupar Angus, N.B.; David Scot Bell, Auchtertyre, Coupar Angus, N.B.; John Turner Clough Hazeldine, Powerstock, Dorsetshire, and Bruges, Belgium; John Stewart Remington, Ulverston, Lancashire; Charles John Bennett, 3, Marlborough-avenue, London; Herbert Cecil Gardner, Armitage, Rugeley, Staffordshire. Gold medals: John Roy Sim, David Scot Bell. Gold-stand silver medal: Lord Charles Kennedy. Scholarships: First scholarship, £25, John Hepburn Miln-Home, Caldera-house, Duns, N.B. Second and third scholarships, £10 each: Geoffrey Henry Neville, Malvern, Worcestershire; Herbert Hardras Lavallion, Paxley, B.A., Thorganby-hall, York; William Head Dowson, Foxley-Henning, Cumberland. Honourable mention for scholarships: Waller, Fairbanks, Stevens-Guille, Gandy, Stooke, Langton, Baron Hodenberg, Gamble, Winder, Hawkins, Alderson, Kay, Lidderdale, Marke, Gaisford.

FATAL PETROLEUM ACCIDENT.

ON Tuesday afternoon, shortly before five, a fire, caused by a lighted match falling into a drum of petroleum broke out at 7, Tamar-street, Woolwich-road, Charlton, a grocer's shop, occupied by Mr. J. A. Sheffield, and by the time an alarm could be raised the flames had taken a firm hold. The shop and its contents were severely damaged, and the rest of the house suffered by heat, smoke, and water. Mrs. Sheffield, who was in the shop at the time, was severely burnt, but is progressing favourably. In the upper part of the house was a lodger named Mrs. Cox and her four children. The youngest, a little girl of 18 months, was so seriously injured that she had to be removed to the Seamen's Hospital, where she died the same day. The mother, in rescuing her, sustained some injury. The inquest on the body of the child was held later in the week at St. Alfege Mission-room, Greenwich. Mrs. Cox said that on Tuesday afternoon she heard a scream whilst in her room, and on looking down the stairs saw that the passage and the shop were in flames. In carrying the deceased child down through the flames it was burnt about the body. Witness also sustained burns on the arm. She took the child to the Seamen's Hospital. G. Miller, a carman in the employ of Mr. Samuel Dodmans, oilman, of Bermondsey, said that he went to Mr. Sheffield's shop on Tuesday afternoon to deliver 10 gallons of petroleum. It was dusk at the time, and witness asked for a light. Mrs. Sheffield struck two matches, one of which fell on top of the drum, on which some paper was floating in a little oil. The paper caught fire, and witness blew it out. His attention was distracted for a minute, and then he noticed that the tank was on fire. He tried to find something to put out the flames, but was unsuccessful. He then saw that Mrs. Sheffield's dress was on fire, and having extinguished the flames he asked her if there was anyone else in the house. Being answered in the affirmative, witness shouted out to Mrs. Cox to come down. He next saw deceased lying at the foot of the stairs. The passage was filled with smoke and flames at the time. Witness told Mrs. Sheffield when she was striking the matches to be careful. The fire was put out by the brigade. There was no explosion. Dr. Darbyshire, house surgeon at the Seamen's Hospital, said that deceased when admitted was extensively burned. Death occurred at half-past nine the same evening. Witness attributed death to the shock.—William Charles Chaffey, a County Council inspector under the Petroleum Acts, said there were no restrictions as to the sale or storage of petroleum oil, unless it gave off an inflammable vapour under 73° Fahrenheit. It then became petroleum within the meaning of the Act. Witness was in favour of special restrictions as to the storage of petroleum.—The Coroner's Officer stated that Mrs. Sheffield was unable to attend, as she was suffering from extensive burns.—The Coroner, in summing up, said he had heard of recent years of a number of oilshops being burnt out—he believed that 27 were thus destroyed last year—and now he had heard the regulations which governed the sale of oils he was not at all surprised. He hoped that wide publicity would be given to the case so that it might act as a caution to shopkeepers.—A verdict of "Accidental death" was returned.

Trade Notes.

A MOTOR FIRE ENGINE.—A motor fire engine is shortly to be given a trial in Paris, and in the event of being successful the system will gradually be adopted throughout the whole of the brigade.

MANUFACTURE OF CORDITE IN AUSTRALIA.—At the recent conference of the Australian commandments, at Melbourne, it was resolved to recommend the various Governments to make arrangements for the manufacture of cordite in Australia, and to engage the services of an engineer officer to advise on technical matters connected with the defence of the colonies.

THE WHITWORTH-ARMSTRONG AMALGAMATION.—The amalgamation of the firms of Sir William Armstrong and Co. and Messrs. Whitworth and Co. was announced last week as an accomplished fact. It is further said that in any event there will not be any transference of business from Newcastle, and the probability is that both businesses will be carried on in much the same style as at present.

EDINBURGH GAS COMMISSIONERS.—A meeting of the Edinburgh and Leith Gas Commissioners was held recently—Bailie Kinloch Anderson presiding. The Works Committee recommended the payment of £7,500 on account of the contract of over £15,000, with Messrs. Humphreys and Glasgow, in connection with the carburetted water-gas plant. The recommendation was approved. A letter was read from Mr. R. Mitchell, the retiring chief engineer of the Edinburgh Works, expressing his grateful appreciation of the manner in which the Commissioners had treated him, thanking them for the retiring allowance granted of £250, and acknowledging past kindnesses received at their hands.

LIQUID FUEL FOR GERMAN WARSHIPS.—The German naval authorities have decided to provide apparatus on board all the large battle-ships for the burning of oil fuel as an auxiliary. Provision for the same will be made in all new ships.

AUSTRALASIA'S GOLD OUTPUT.—The output of gold in Australasia for 1896 is estimated, on the basis of the actual yield for the nine months ended September 30, at 2,360,000 oz., as against 2,359,244 oz. last year. The contribution of Victoria is put at 780,000 oz., as compared with 740,000 oz. in 1895, or an increase of 40,000 oz. on the year, although the returns for the September quarter show a falling off as against June. Queensland is allowed 650,000 oz., as against 631,682 oz.; New South Wales 310,000 oz., as against 360,165 oz.; New Zealand 300,000 oz., as against 293,491 oz.; West Australia 220,000 oz., as against 231,513 oz.; Tasmania 60,000 oz., as against 54,964 oz.; and South Australia 40,000 oz., as against 47,343 oz. In regard to New South Wales, it is thought probable that the actual output has not all come into sight, the reason offered being that the negotiations in connection with the recent demand for Australian gold for America caused the Sydney bankers to hold bullion back. During the nine months the gold received from Westralia at the Melbourne Mint was 152,259 oz., as compared with 160,949 oz. for the corresponding period last year.

THE MOTOR CAR.—Messrs. Thornycroft, of Chiswick, have made a practical test of the motor car which is not without value. On Wednesday last they started a road van from Chiswick for Cardiff, carrying down a load of half a ton of asbestos. The distance is about 164 miles, and the van successfully accomplished the journey in 25 working hours, arriving at its destination on Saturday morning without stop for repairs or adjustment. The motive power used was steam.—The following notice of motion has been given by Mr. G. Yarrow Baldoek for consideration at the next meeting of the Hackney Vestry: "That, in consideration of the large and continually increasing amounts paid by this vestry for horse hire and cartage, and with a view to facilitate the work of 'slopping and dusting' being undertaken entirely by the vestry without the intervention of a contractor, it be referred to the General Purposes Committee and to the Sanitary Committee jointly to report as early as may be (a) as to the practicability and possible economy of employing for the purposes of the vestry carts and vans driven by electric or other automatic motors; (b) as to the advisability of fitting suitable motors to the water-carts and other vehicles at present the property of the vestry; (c) as to the advisability of the purchase by the vestry for experimental purposes of a motor van or vans of the most approved pattern designed for the collection of refuse and scavenging. And, further, that the said Joint Committee be and is hereby authorised to obtain all such necessary estimates, plans, drawings, and specifications as will enable the fullest possible information (specially as to the probable capital outlay and cost of maintenance) being embodied in the report for the guidance of the vestry."

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are firmer, being scarce, 90's are now quoted at 3s. 10 3/4d. and 50/90's 2s. 10 1/2d. for prompt. Carbolic acids keep steady, with 60% crude at 2s. 1d., and 40% crystals at 7 1/2d. Crude naphtha is scarce, at 1s. 1d., makers being well sold. Solvent steady, at 1s. 7d. Other products unchanged.

Sulphate of ammonia is firmer, and the demand slightly keener. Beckton price is now £8. for May-August, at which sales have been made. In the prompt market prices are also ranging higher. London outside makes figure at £7. 17s. 6d. to £8, Liverpool £7. 17s. 6d, Hull £7. 17s. 6d. to £8, and Leith £7. 17s. 6d. Nitrate is quiet, but rather dearer.

MISCELLANEOUS CHEMICAL MARKET.

Generally, in the alkali trade, business continues steady for all products, and though there is no tendency to higher prices, the market on the whole may be considered firm. For caustic soda the spot demand is still good for export, and prices are unchanged, viz.:—L.o.b. Liverpool, 77%, £9. 5s.; 74%, £8. 5s.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. per ton, 10-ton lots. Alkali, 58%, for home trade is still maintained at £3. 7s. 6d., bags, f.o.r., but a much lower price is accepted for export business. Soda crystals quiet at 32s. 6d., bags, f.o.r.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals show no sign of improvement yet, and business is still very quiet. Caustic soda, 76/77%, is quoted at £9. per ton; 70%, £7. 10s. per ton; and bleaching powder £6. 5s. to £6. 15s. per ton, according to destination. Sulphur scarce at £5. per ton nett. Other articles unaltered.

Bleaching powder, softs, £7. per ton, nett; hards, £7. 5s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, nett weight; gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 5%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady at 9s. 6d. per ton, f.o.b. Tees. Black salt is also in good demand.

COALS.—There is very little alteration in the trade, and the market is steady on the whole. Coke continues very firm, with a large local demand. To-day's prices rule:—Best Northumbrian steam, 7s. 10½d. to 8s. per ton; second qualities, 6s. 9d. to 7s. 3d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton. Gas coals, 7s. to 8s. per ton. Bunker coals, 6s. 9d. to 7s. 6d. per ton. Household coals, 10s. to 11s. per ton. Coke, 15s. to 16s. per ton.

New Companies.

Non-Fouling Compositions and Non-Corrosive Paint Ltd.—CAPITAL £5,000., in £1. shares. Formed to acquire and to account the secret process and rights of J. Hughes, for manufacturing and vending non-fouling compositions and non-corrosive paints, enter into a certain agreement. The number of directors is no less than three nor more than twelve. The subscribers appoint the first; qualification, £50.; remuneration, as the company may decide. Registered office, 4, Chapel Walks, Cross Manchester.

R. Gay and Co., Ltd.—CAPITAL £50,000., in £1. shares (six per cent preference). Formed to acquire, take over, and conduct the business of oil boiler and refiner, and paint, colour, and manufacturer carried on by T. Carr as "R. Gay and Co." Works, York-road, City-road, E.C., and to adopt a certain agreement. The subscribers to the memorandum of association are:—T. Carr, 25, Esmond-road, Bedford Park, W.; Mrs. C. M. Marri Esmond-road, Bedford Park, W.; Mrs. L. Carr, 3, Lux Gardens, Brook Green, W.; J. Pettigrew, 6, St. Helen's Place, chemist; S. H. Lambert, 132, Fenchurch-street, E.C., merchant; Hagger, 9, Elmstone-road, Fulham, manager.

General Oil Extracting Co., Ltd.—CAPITAL £20,000., shares. Formed to acquire from W. R. Harrison and E. St. inventions relating to the method of and apparatus for extracting from seed, to enter into a certain agreement, and to buy, sell, for market, manipulate, crush, import, export, deal in oils, seeds and other oleaginous substances. The subscribers to the memorandum of association are:—J. Stuart, 22, High-street, Hull, seed & J. Stephen, 5, High-street, Hull, seed crusher; C. Stephen, 5, street, Hull, seed crusher; G. D. Stuart, Quay-road, Bridlington, clerk; E. J. Tomalin, 134, Colman-street, Hull, import; Gregson, 22, High-street, Hull, seed crusher; J. Murray, 457, street, Aberdeen, merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 26th.

Acetic Acid —	
Holland, 200 pks.	R. W. Greeff & Co.
" 174	A. & M. Zimmermann
Acetone —	
Germany, 20 cks.	Stein Bros.
Holland, 1	Phillips & Graves
Alum —	
Holland, 88 cks.	R. W. Greeff & Co.
Antimony Ore —	
Spain, 27 t.	H. Grey, jun.
Australia, 1	"
Asbestos —	
Germany, 445	Craven & Co.
Barytes —	
Germany, 55 cks.	W. Harrison & Co.
" 25	W. Pope & Co.
Belgium, 25	J. L. Lyon & Co.
" 35	Fleming's Oil & Cheml. Co.
Bleaching Powder —	
Holland, 183 cks.	J. M. Steel & Co.
Bleaching Soda —	
Germany, 125 pks.	H. Lambert
Bone Meal —	
E. Indies, 350 t.	A. Hunter & Co.
Caoutchouc —	
France, 1½ c.	Major & Field
B. Honduras, 1	L. & I. D. Jt. Co.
France, 40	Prop. Bull Wf.
Singapore, 200	Vokins & Co.
M'dagascari, 159	Procter Bros.
Sydney, 100	McIlwraith & Co.
Singapore, 731	E. Boustead & Co.
Belgium, 24	Société John Cockerill
France, 17	S. Figgie & Co.
Zanzibar, 22	Clarke & Smith
Carbolic Acid —	
Germany, 75 pks.	J. G. Back
Castor Oil —	
Belgium, 12 brls.	A. Brown & Co.
Caustic Potash —	
U. States, 9 cks.	L. & I. D. Jt. Co.

Caustic Soda —	
Belgium, 100 c.	C. Windschuegl & Co.
Chemicals (otherwise undescribed)	
France, 425	Mory & Co.
U. States, 6	L. & I. D. Jt. Co.
Holland, 15	Phillips & Graves
Germany, 80	"
" 8	Petri Bros.
Holland, 5	R. W. Greeff & Co.
" 47	H. Lorenz
" 10	R. Waters
Belgium, 135	Société John Cockerill
Germany, 91	L. & I. D. Jt. Co.
" 1,048	A. & M. Zimmermann
" 43	Becker & Wagner
Holland, 337	T. H. Lee
Cream of Tartar —	
France, 15 cks.	W. C. Bacon & Co.
Spain, 5	E. & F. Wf. Co.
" 5	W. C. Bacon & Co.
Italy, 15	Howard & Sons
Cresoline —	
U. States, 38 cks.	Lunham & Moore
Dyestuffs —	
Argols	
Italy, 250 bgs.	Thames S. T. & L. Co., Ltd.
Cochineal	
Canaries, 7 bgs.	G. S. Bruce
" 10	J. W. Borland
" 9	Swanston & Co.
" 9	Sperling & Williams
Cutch	
Rangoon, 500 bxs.	J. Palmer, jun., & Co.
" 700	A. Howden & Co.
Extracts	
France, 210 pks.	Bennett S. S. Co.
Canada, 40 cks.	C. T. Bowring & Co.
U. States, 70	Williams, Torrey & Co.
Germany, 5	T. H. Lee
France, 47	"
" 50	"
Gambier	
Singapore, 177 bgs.	Beresford & Co.
" 219 bls.	W. Balchin

" 253	Brickmann & Co.
" 175	R. & J. Henderson
" 424	G. R. Haller
Indigo	
E. Indies, 21 chts.	J. Hatton Hall & Co.
" 23	Parsons & Keith
" 48	L. & I. D. Jt. Co.
Myrabolams	
E. Indies, 590 bgs.	Marshall & French
Shumac	
Italy, 500 bgs.	Harris Bros. & Co.
" 100	H. Johnson & Sons
" 1,450	W. Balchin
" 1,650	J. Kitchen
" 250	Culverwell, Brooks & Co.
Valonia	
A. Turkey, 8 t.	Bevington & Sons
" 15	M. D. Co.
" 15	Beck & Pollitzer
Parina —	
Holland, 50 bgs.	J. T. Morton
Germany, 450	R. Bennett & Co.
French Chalk —	
Austria, £34	Bentwood Furn. Co.
Glucose —	
Germany, 25 pks.	202 c. Bennett S. S. Co.
U. States, 350	1,925 R. G. Hall & Co.
" 30	300 Union L. Co.
Germany, 49	322 Deering & Co.
" 25	200 J. Knill & Co.
" 25	202 M. D. Co.
Gluc —	
Holland, £230	L. & N.-W. Rly.
" 25	Armour & Co.
Denmark, 40	Bailey & Leatham, Ltd.
Belgium, 140	J. Barber & Co.
France, 96	J. Harrison
Holland, 29	G. Kahn & Co.
" 49	H. Johnson & Sons
France, 95	E. Fischel & Co.

Germany, 22	Craven
" 21	Phillips & Co.
France, 15	M. Ash
Infusorial Earth —	
Melb'ne, £204	L. & N.
Lamp Black —	
U. States, 20 bds.	L. & I. D.
" 210 pks.	M. Ash
Lead Nitrate	
Holland, 11 cks.	E. J.
Litharge —	
Germany, 86 cks.	Spies Br
Manganese Borate —	
Germany, 20 kgs.	"
Manure —	
Germany, 53 t.	A. J. Loh
Belgium, 100	West &
Mica —	
E. Indies, £810	W. M. Smith
" 193	E. Davis
Nickel Salts —	
Germany, 8 cks.	"
Nitre —	
Taltal, 16,750 bgs.	W. Mount
Ochre —	
Germany, 15 brls.	A. E. B.
Holland, 12 pks.	Phillips & Co.
Phosphate Rock —	
Belgium, 48 t.	Poynter & Co.
" 188	Sawyer
Plumbago —	
Italy, 100 bgs.	B. B.
Ceylon, 78 cks.	R. G. H.
Potash —	
France, 200 c.	F. W. Ber
Potassium Carbonate —	
Germany, 310 c.	R. W. Gre
Potassium Chloride —	
Germany, 508 bgs.	Bessler
Potassium Permanganate —	
Germany, 21 kgs.	"

Potassium Sulphate—

Germany, 250 bgs. F. W. Berk & Co

Rosin Oil—France, 30 brls. Fleming's Oil & Chemical Co.
" 100 J. E. Powell**Saltpetre—**Germany, 15 cks. 130 kgs. P. Hecker & Co.
" 40 Petri Bros.
" 50 L. & I. D. Jt. Co.

E. Indies, 292 Lucas & Spencer's Wf.

Soda—Germany, 2,000 c. R. Waters
Belgium, 2,400 "**Sodium Hyposulphite—**

Germany, 50 cks. Petri Bros.

Starch—Holland, 1,020 cs. Little & Johnston
Austria, 50 bgs. M. D. Co.
Germany, 2,670 cs. Horne & Co.
Holland, 65 Philipps & Graves
Belgium, 405 T. H. Lee
" 190 Taylor Bros.U. States, 25 Ohlenschlaeger Bros.
" 240 bgs. F. Clayton & Co.
Belgium, 337 cs. E. & T. Pink
" 110 Vokins & Co.
Holland, 840 "**Stearine—**

Belgium, 50 bgs. H. Hill & Sons

Sulphur—

Italy, 265 t. G. Boor & Co.

Tar—

Germany, 200 brls. W. Beard & Son

Tartaric Acid—

Holland, 28 pks. Kirkpatrick & Co.

" 2 F. C. Devon & Co.

" 4 B. & F. Wf. Co.

Ultramarine—

Holland, 1 cs. Philipps & Graves

" 22 Thames S. T. & L. Co.

Germany, 18 H. Brook & Co.

Varnish—

Germany, 2 pks. L. & I. D. Jt. Co.

White Lead—

Holland, 20 cks. W. A. Rose & Co.

" 20 E. J. Diggins

Germany, 1 H. Lambert

" 45 W. A. Rose & Co.

" 18 Randall Bros.

Belgium, 18 brls. Perkins & Homer

Germany, 26 cks. D. Storer & Sons

" 25 H. B. Alder & Co.

Holland, 29 Burrell & Co.

Wood Pulp—

Holland, 5 216 pks. Henderson, Craig, & Co.

Sweden, 1,656 J. Sharp

" 150 Henderson, Craig, & Co.

Norway, 246 W. G. Taylor & Co.

Germany, 237 G. S. N. Co.

" 200 Beadle Bros.

" 85 Thames S. T. & L. Co.

" 306 Anderson, Becker, & Co.

Zinc Oxide—

U. States, 200 brls. M. Ashby, Ltd.

Germany, 500 cks. Soundy & Sons

" 75 R. W. Greeff & Co.

" 98 brls. M. Ashby, Ltd.

Holland, 50 Petri Bros.

" 5 Beck & Pollitzer

Zinc White—

Germany, 125 cks. Spies Bros. & Co.

Holland, 4 Brit. Anti-Fouling Co.

" 25 Brandram Bros. & Co.

LIVERPOOL.

Week ending December 24th.

Acetic Acid—

Rotterdam, 10 balloons

Antimony Ore—

Brit. Columbia, 1,260 bgs.

Bestos—

Rotterdam, 15 bls.

Castor Oil—

Antwerp, 14 cks.

Calcic Acid—

Rotterdam, 22

Chromic Acid—

Rotterdam, 91 cks. Seine & Mersey S. S. Co., Ltd.

Chromic Acid—

Rotterdam, 40

Chromic Acid—

Rotterdam, 1,340 bgs.

Sorate of Lime—

Mollendo, 405 bgs. A. & S. Henry & Co

Borax—

Mollendo, 2,800 sks.

Castor Oil—

Calcutta, 1,000 cs. Ralli Bros.

Marseilles, 350

Genoa, 1,039 brls. 7 cks.

Chrome Ore—

Baltimore, 23 cks. P. M. Quie & Son

Colours—

Marseilles, 8 cs. J. L. Lyon & Co.

Paris, 13 cks. Seine & Mersey S. S. Co., Ltd.

Dyestuffs—

Rotterdam, 20 cks.

Argols

Patras, 11 brls.

Cochineal

Gd. Canary, 19 bgs.

" 10 Kulmer, Henderson & Co.

" 10 Burrell & Co.

" 14 G. Amsinck & Co.

" 20 Sperling & Williams

Cutch

Genoa, 105 cks.

Divi Divi, 1 bgs. Brown, Geveke & Co.

Amsterdam, 70 bgs.

Gambier

Singapore, 4,985 bls. 861 bgs.

Madder

Larnaca, 1 ble. G. H. Scrim

Shumac

Palermo, 100 bgs. J. Kitchen & Co.

" 1,415 850 bls.

Farina—

Trieste, 100 bgs.

Fiume, 235 200 bls.

Glucose—

New York, 500 brls.

Glue—

Genoa, 70 brls. Animal Product Co.

Fiume, 110 bgs. T. M. Duche & Sons

Rouen, 11 cks. 60 bls. Co-op. W'sale Society, Ltd.

Hamburg, 100 brls.

Philadelphia, 1 cs. T. Robinson & Son

Rotterdam

" 11

Insecticides—

Trieste, 50 brls.

Iron Oxide—

Trieste, 17 cks. Gabian Bros.

Lamp Black—

Boston, 1 bx. Pitt & Scott

Lead Acetate—

Hamburg, 14 cks.

Limestone—

Antwerp, 1 cs. J. T. Fletcher & Co.

Litharge—

Rotterdam, 2 pks.

Manganese Ore—

Huelva, 960 t. Darwen & Mostyn Iron Co.

Mica—

Calcutta, 2 cs. Pitt & Scott

Mineral White—

Fiume, 100 bgs. A. Baumanno & Co.

Minium—

Rotterdam, 4 cks.

Molasses—

Alexandria, 1,501 cks.

Ochre—

Rouen, 30 cks. Co-op. W'sale Society, Ltd.

Marseilles, 50 brls. Wilson, Meyer & Co.

Paint—

Marseilles, 36 cs. G. H. Fletcher & Co.

Philadelphia, 10 bxs. T. Robinson & Sons

Paraffin Scale—

Baltimore, 400 brls.

Potash—

Philadelphia, 54

Rouen

" 10 cks. Co-op. W'sale Society, Ltd.

Dunkirk

" 18 72 duns.

Pumice Stone—

Messina, 16 bgs. Anglo-Spanish G. Co.

Teneriffe

" 1

Rosin—

New York, 250 brls.

Savannah, 5,707

Salt—

Sur, 30 bgs.

Saltpetre—

Hamburg, 10 cks. 300 kgs.

Soup—

New York, 11 bxs. J. Currier & Co.

Naples

" 47 587 cs. 1 bl.

Boston

" 1 Colgate & Co.

New York

" 1 W. I. & P. S. S. Co.

Marseilles

" 2

Rotterdam

" 24 cks.

Antwerp

" 85

Bari

" 400 bgs. W. Harrison & Co.

Genoa

" 615 Ralli Bros.

Calcutta

" 4 cks. J. Matthews & Co.

Sodium Silicate—

Rotterdam, 4 cks.

Starch—

New York, 350 bgs.

Antwerp, 199 cs. J. T. Fletcher & Co.

Stearine—

Antwerp, 47 bgs.

Rouen, 12 Co-op. W'sale Society, Ltd.

Antwerp, 26 13 cs. J. T. Fletcher & Co.

Sulphur—

Catania, 97 brls. 100 cks. 142 bgs.

Tallow—

Baltimore, 90 tcs.

Tartar

Bordeaux, 10 cks.

Tartaric Acid—

Bordeaux, 20 cks.

Hamburg, 4

Rotterdam, 4 Wright, Crossley & Co.

Treacle—

Bordeaux, 12 pks.

New York, 3 cs. Elder, Dempster & Co.

Ultramarine—

Rotterdam, 20 cks. R. Ryley

Varnish—

New York, 4 b. ls. C. A. Warren

Waste Salt—

Hamburg, 1,882 bgs.

White Lead—

Rotterdam, 10 cks.

Wood Pulp—

Boston, 19 bls. Spicer Bros., Ltd.

Rotterdam, 206 Nevaes Paper Co.

Zinc Ashes—

Boston, 125 brls.

Zinc Oxide—

New York, 50 brls.

Antwerp, 75

Rotterdam, 20 cks. J. Matthews & Co.

Zinc White—

Hamburg, 80 cks.

Rotterdam, 5

Alumina Sulphate—

Rotterdam, 21 cks.

Aluminous Cake—

Rotterdam, 25 cks.

Ammonia—

Rotterdam, 23 cs.

Ammonium Nitrate—

Rotterdam, 1 ck.

Aniline Oil—

Rotterdam, 2 cks. Wilson, Son, & Co.

Antimony Oxalate—

Rotterdam, 10 cks. Wilson, Son, & Co.

Antimony Salt—

Rotterdam, 4 cks. Wilson, Son, & Co.

Barytes—

Antwerp, 100 bgs.

Rotterdam, 5 cks. 100

Coal Products (otherwise undes.)—

Rotterdam, 1 bl. Wilson, Son, & Co.

Colours—

Boulogne, 5 cks.

Antwerp, 14 35 cs.

Rotterdam, 20 2 9 bxs.

Cream of Tartar

Rotterdam, 6 cks. Wilson, Son, & Co.

Dyestuffs—

Alizarine, 20 cks. 1 cs. Wilson, Son, & Co.

Indigo

Rotterdam, 1 cist.

Farina—

Stettin, 2,223 bgs. Stott, Coker, & Co.

Glue—

Rotterdam, 7 cks. 50 bgs.

Treport, 31 79 bls.

Litharge—

Rotterdam, 24 cs. Wilson, Son, & Co.

Logwood—

Boulogne, qty.

Oxalic Acid—

Rotterdam, 30 cks. Wilson, Son, & Co.

Potash—

Treport, 74 cks.

Sodium Nitrate—

Rotterdam, 8 cks. Wilson, Son, & Co.

Starch—

Rotterdam, 175 cs. Wilson, Son, & Co.

Antwerp

" 473

Sulphuric Acid—

Rotterdam, 13 cs.

Tartaric Acid—

Rotterdam, 20 cks. Wilson, Son, & Co.

Antwerp

" 5

Ultramarine—

Rotterdam, 4 cks. Wilson, Son, & Co.

Wood Pulp—

Helsingfors, 960 bls.

Zinc Oxide—

Rotterdam, 50 brls. Wilson, Son, & Co.

Antwerp

Caoutchouc — Christiania, 1 cs. Wilson, Sons, & Co., Ld.			Soap — New York, 738 pks. 4 cs.			Hamburg , 1 2 cs.			TYNE.		
Castor Oil — Genoa, 34 cs. Wilson, Sons, & Co., Ld.			Starch — Bremen, 4,228 cs. Veltmann & Co. Wilson, Sons, & Co., Ld.			Dyestuffs — Alizarine Rotterdam, 94 brls. 1 bx. J. Rankine & Son			<i>Week ending December 26th.</i>		
Chemicals (otherwise undecribed) Bremen, 6 cs. Veltmann & Co. Hutchinson & Son			New York , 30 74 pks. "			Indigo Rotterdam, 9 chits. J. Rankine & Son			Alum Earth — Hamburg, 37 cks.		
Rotterdam , 1 bx. Hutchinson & Son			Stearine — Antwerp, 13 bgs. Bailey & Leatham			Glue — Rouen, 56 cks. 20 brls. 15			Barium Chlorate — Rotterdam, 350 bgs. Tyne S. S. Co.		
Cod Oil — Bergen, 102 brls. Wilson, Sons, & Co., Ld.			Tar — Rotterdam, 4 brls. Hutchinson & Son			Iron Sulphide — Hamburg, 1 ck.			Cod Oil — Trondhjem, 5 brls.		
Colours — Riga, 1,773 cs. Wilson, Sons, & Co., Ld.			Tartar — Bordeaux, 4 cks. Rawson & Robinson			Lactic Acid — Boston, 10 brls.			Farina — Hamburg, 50 bgs.		
Rotterdam , 7 bks. W. & C. L. Ringrose			Treacle — New York, 1,500 brls. Wilson, Sons, & Co., Ld.			Ochre — Rouen, 72 cks. 63			Paraffin Scale — New York, 1,938 brls.		
Bremen , 11 cks. Veltmann & Co.			Turpentine — Libau, 51 brls.			Paraffin Wax — Boston, 116 brls.			Phosphoric Acid — Hamburg, 2 cs.		
Danzig , 10 cks. Wilson, Sons, & Co., Ld.			Ultramarine — Bremen, 4 cks. Hutchinson & Son			Pitch — Marseilles, 48 brls.			Salt — Hamburg, 190 t.		
Antwerp , 20 pks. Wilson, Sons, & Co., Ld.			Yarnish — New York, 44 pks. Wilson, Sons, & Co., Ld.			Potash — Rotterdam, 22 cks. J. Rankine & Son			Wood Pulp — Sarpborg, 1,548 bls.		
Cottonseed Oil — New York, 501 brls. Wilson, Sons, & Co., Ld.			White Lead — Amsterdam, 26 cks. Hutchinson & Son			Potassium Carbonate — Antwerp, 13 cks.			GOOLE.		
Cryolite — Copenhagen, 1 ck. Wilson, Sons, & Co., Ld.			Wood Pulp — Christiania, 3,083 bls. Wilson, Sons, & Co., Ld.			Potassium Nitrate — Hamburg, 40 cks.			<i>Week ending December 27th.</i>		
Dextrine — Stettin, 20 bgs. Wilson, Sons, & Co., Ld.			Gotenburg , 1,716 200 pks. "			Pyrites — Huelva, 3,848 t. Tharsis Co.			Acetic Acid — Rotterdam, 4 cks. 20 cists		
Dyestuffs — Alizarine Rotterdam, 16 pks. W. & C. L. Ringrose			Zinc Oxide — Rotterdam, 25 cks. Hutchinson & Son			Soap — New York, 45 bks.			Alizarine — Rotterdam, 3 brls.		
Argols Bordeaux, 60 bgs. Rawson & Robinson						Sodium Nitrate — Pisagua, 2,327 t.			Alkali — Calais, 10 cks.		
" 50 cks. Wilson, Sons, & Co., Ld.						Sodium Sulphate — Rotterdam, 3 brls. J. Rankine & Son			Aniline Colours — Hamburg, 15 cks. 2 cs.		
Farina — Stettin, 500 bgs. Wilson, Sons, & Co., Ld.						Starch — New York, 900 bks. 525 bgs. 599			Dyestuffs (otherwise undecribed) Rotterdam, 288 cks. 49 cs.		
Harlingen , 600 W. & C. L. Ringrose						Stearine — Marseilles, 143 bgs.			Boulogne , 59 5		
Antwerp , 150 Wilson, Sons, & Co., Ld.						Tartaric Acid — Marseilles, 32 brls. 1 ck. J. Rankine & Son			Farina — Hamburg, 1,500 bgs.		
Harlingen , 300 bls. Hutchinson & Son						Treacle — Charente, 6 gr. cks. 100 brls. 1 cs. 300 Waddell & Bryson			Delft , 1,570 100		
Glucose — New York, 300 brls.						Yarnish — New York, 10 brls. 1 bx. 1 cs.			Logwood — Belize, 554 tons.		
Glue — Antwerp, 20 pks. Wilson, Sons, & Co., Ld.						White Lead — Rotterdam, 72 cks. J. Rankine & Son			Madder — Rotterdam, 4 cks.		
Ochre — Marseilles, 41 cks. Wilson, Sons, & Co., Ld.						Wood Pulp — Hamburg, 700 bls. 707			Ochre — Rouen, 24 cks.		
" 109						Zinc Oxide — New York, 10 brls. 25 cks.			Plumbago — Boulogne, 1 ck. 1 cs.		
Phosphate — Ghent, 2,040 bgs. 80 t.						Zinc White — Rotterdam, 25 cks. J. Rankine & Son			Saltpetre — Hamburg, 40 kgs.		
Pitch — Amsterdam, 21 cks. Hutchinson & Son									Sodium Silicate — Rotterdam, 1 ck.		
Plumbago — Leghorn, 100 bgs.									Tartaric Acid — Rotterdam, 1 ck.		
Pumice Stone — Leghorn, 60 bls. Wilson, Sons, & Co., Ld.									Waste Salt — Hamburg, 300 bgs.		
Salt — New York, 4 pks. Wilson, Sons, & Co., Ld.									GRIMSBY.		

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			Cologne , 6 t. 1 155			Antimony Sulphide — Calcutta, 13 c. £16			Hobart , 11 5		
<i>Week ending December 30th.</i>			Ammonium Chloride — Algoa Bay, 7 c. £10			Arsenic — Calcutta, 5 t. £150			Lyttelton , 2 4		
Acetic Acid — Canterbury, 15 cs. £31			Algoa Bay , 14 cks. 10 92			Boracic Acid — Melbourne, 10 cs. £96			E. London , 17		
Acids — Cape Town, 12 cs. £31			Malmö , 5 t. £40			Borax — Adelaide, 1 t. 12 c. £36			Alexandretta , 6 6		
New York , 4 t. 8 c. 70			Ammonium Sulphate — Jersey, 100 765			Carbolic Acid — Hamburg, 160 cks. £1,280			Sydney , 10 10		
Alkali — Launceston, 4 t. 1 c. £16			Bremen , 110 850			Carbonic Acid Gas — Napier, 3 t. 15 c. £190			Wellington , 1 2		
Hobart , 6 24			Dunkirk , 125 945			Caustic Soda — Philadelphia, 16 t. 15 c. £159			Chemicals (otherwise undecribed)		
Rotterdam , 5 9 31			Alicante , 100 750			Philadelpha , 10 t. 15 c. £159			Hong Kong , 10 c. £10		
New York , 1 10 93			Philadelphia , 75 580			Townsville , 10 10			Treport , 7 t. 11		
Ammonia — Calcutta, 13 dms. £35			Ostend , 10 78						Biogo , 2 10		
Ammonium Carbonate — Rotterdam, 10 kgs. £16			Sourabaya , 970 7,525						Dunkirk , 16		
Calcutta , 10 c. £1			Ghent , 100 875						Calcutta , 10 kgs.		
			Antimony Crocus — Boston, 10 c. £16						M. Video , 5 cs.		
									Melbourne , 7 pks.		
									Natal , 13		
									Citric Acid — Hamburg, 3 brls. 8 kgs.		
									Cape Town , 2		
									Brussels , 1		

Antwerp,	4	25
Amsterdam,	6	1 c.
Genoa,	20	122
Auckland,	1	7
Cologne,	3 c.	15
Townsville,	1 t.	15
Rombay,	3	1 c.
Calicut,	2	8
Sydney,	1	7
Rotterdam,	1	2

Coal Products—

Alizarine		
Reval,	7 cs.	£344
Alizarine Blue		
Boston,	3 cks.	£63
Aniline Oil		
Stettin,	11 cks.	£500
New York,	1 dm.	41
Aniline Salts		
Stettin,	5 brls.	£50
Anthracene		
Cologne,	495 cks.	£2,555
Benzol		
Amsterdam,	12 dms.	£350
Rotterdam,	180 cks.	1,048
Hamburg,	48	179
Boulogne,	26	110
Creosote Oil		
Boston,	250 brls.	£135
Creosote Salts		
Cologne,	640 bgs.	£90
Dyes		
Calcutta,	1 cs. 10 brls.	£56
Naphtha		
Natal,	20 dms.	£15
Treport,	54 brls.	235
Naphthalene		
Stettin,	70 cks.	£47
Pitch		
St. Nazaire,	970 t.	£1,203
Terneuzen,	300	888
Malta,	100 cks.	42
Newport News,	461 1,156 bgs.	431
Alexandria,	250 brls.	78
Antwerp,	160	205
Genoa,	1 956	3,250
Melbourne,	11 pks.	7
Calcutta,	6	6
New York,	200	132
Pyridine Bases		
Rotterdam,	4 dms.	£182
Tar		
Mossel Bay,	85 dms.	£6
E. London,	210	9
Brussels,	20 brls.	10
Algera Bay,	400	14
Cologne,	250 cks.	125
Natal,	175	8
Batavia,	70	79
Wellington,	40	8
New York,	1,000	482
Shanghai,	2	8
Tar Oil		
Colombo,	40 dms.	£14
Tar and Pitch		
Wellington,	20 dms.	14 pks.

Coal Products (otherwise undes.)—

Las Palmas,	3 cks.	£6
Rotterdam,	14 dms.	910

Copper Sulphate—

Marseilles,	85 t.	£1,473
Roubaix,	5	86
Paris,	60	1,227
Smyrna,	1	18

Cream of Tartar—

Algera Bay,	3 cs.	£14
Sydney,	1 t.	78
Auckland,	10 c.	8 cks.
Bundaberg,	10	48
Cape Town,	10	39
Adelaide,	1	5
Fremantle,	10	48
Chili,	7	22

Disinfectants—

Penang,	100 dms.	£47
Natal,	2 cks. 3 cs. 4 pks.	28
Sydney,	24	45
Kingston,	20	47
Melbourne,	20	32

Vanure—

Memel,	500 t.	£1,235
New York,	41	164
Cape Town,	186	6 c.
Jersey,	63	17
Deli,	63	567
Demerara,	20	250
Mauritius,	60	472
Hamburg,	121	9
Guadeloupe,	6	12
Barbadoes,	6	2
Calicut,	5	42

Acid—

Christianopol,	15 c.	£197
Salic Acid—		
Amsterdam,	3 t. 2 c.	£70

Melbourne,	15	39
Phosphorus—		
Adelaide,	3 c.	£30
Calcutta,	1	10
Boston,	14	112

Potassium Chlorate—

Melbourne,	10 c.	£24
Boston,	10	20

Potassium Cyanide—

Sydney,	3 c.	£14
Melbourne,	50 cs.	466
Sarawak,	10	61
Fremantle,	1	10
Algera Bay,	10	840
New York,	70	523
Delagoa Bay,	50	247

Potassium Prussiate—

Cologne,	6 cks	£125
Danzig,	39	541
Antwerp,	5 t. 13 c.	339
Ghent,	1	15
New York,	75	1,020
Genoa,	14	201

Potassium Sulphate—

Mauritius,	150 bgs.	£154
------------	----------	------

Rochelle Salts—

Adelaide,	3 c.	£11
Saltpetre—		
Fremantle,	10 c.	£11
Pt. Elizabeth,	1 t. 2	27
Bahia,	3	75
Dunedin,	1	23
Sydney,	3	68
Barbadoes,	10	11

Sheep Dip—

Natal,	4 t. 1 c.	£85
Boston,	1	10
Napier,	3	5
B. Ayres,	33	730

Soda Crystals—

Newcastle,	15 t.	£40
------------	-------	-----

Soda Salts—

New York,	8 t. 19 c.	£113
-----------	------------	------

Sodium Nitrate—

Lisbon,	16 t. 4 c.	£137
---------	------------	------

Sodium Prussiate—

Antwerp,	4 cks.	£49
Ghent,	1	13

Sodium Silicate—

Hobart,	15 t.	£64
---------	-------	-----

Sodium Sulphate—

Ghent,	135 t.	£205
--------	--------	------

Sulphur—

M. Video,	20 cs.	£31
Wellington,	2 t.	15

Tartaric Acid—

Algera Bay,	2 cs.	£19
Auckland,	1 c.	7
Corunna,	5 c.	23
Calcutta,	2	12
Cape Town,	10	53
Chili,	1 t.	110

LIVERPOOL.

Week ending December 30th.

Albumen—		
Boston,	6 t. 18 c.	£150

Alum—

Talcahuano,	1 t. 5 c.	£6
Cape Town,	17	3 q.
St. John, N.B.,	1	9
Smyrna,	3	16
Bourgas,	4	2
Valparaiso,	1	3
Dunedin,	1	5
Lisbon,	2	10
Fiume,	1	5
B. Ayres,	6	10
Melbourne,	3	3

Aluminous Cake—

Bombay,	1 t.	1 q.
---------	------	------

Ammonia (Liquid)—

Antofagasta,	2 t. 5 c.	£8
--------------	-----------	----

Ammonium Carbonate—

Hio, 2 t. 5 c.	£70
----------------	-----

Ammonium Chloride—

Alexandria,	3 t.	£105
Bilbao,	10 c.	2 q.
Reval,	2	30
Salonica,	1	2
Barcelona,	3	4
Rouen,	2	70
Genoa,	3	3
Antwerp,	12	12

Ammonium Sulphate—

Christiania,	60 t. 16 c.	3 q. £455
Gandia,	50	15
Odessa,	1	1

New York,	50	15
Las Palmas,	11	3
50 bgs	1	129
East St. Louis,	50	376
Demerara,	381	14
Philadelphia,	101	2
Valencia,	102	8
Genoa,	30	11
San Francisco,	153	4

Bleaching Powder—

Alexandria,	3 cks.	100
Baltimore,	102	10 pks.
Bilbao,	28	8 cs.
Bombay,	10	8 cs.
Boston,	614	45 bxs.
Genoa,	87	5 brls.
Ghent,	96	
Havre,	15	
Lisbon,	23	
Melbourne,	100	
M. Video,	10 pks.	
Newport News,	25	
New York,	680	
Philadelphia,	61	
Rio de Janeiro,	18	
Rotterdam,	12	
Rouen,	47	
Shanghai,	12	
Tampico,	14	
Valparaiso,	80	
Portland,	18 cks.	
Cape Town,	1 t.	£6

Borax—

E. London,	40 kgs.	£42
Braila,	3 t.	1 q.
Hamburg,	1	1 c.
Genoa,	1	11
Fiume,	1	11
Genoa,	1	8
Gothenburg,	1	10
Portland, M.,	20	3
Antwerp,	10	2
Yokohama,	3	9
Rotterdam,	10	8

Calcium Chloride—

B. Ayres,	2 t. 11 c.	£6
Fiume,	3	3
Sydney,	3	5
M. Video,	2	12

Carbolic Acid—

Genoa,	1 t.	£71
Hamburg,	5	326
New York,	6	1 c.
Odessa,	12	4
Rotterdam,	10	596
Antwerp,	8	13
Rouen,	3	2
Rio de Janeiro,	9	3

Caustic Potash—

Para,	3 t. 11 c.	£90
-------	------------	-----

Caustic Soda—

Adelaide,	65 dms.	
Alexandria,	48	
Alicante,	130	
Antwerp,	50	
Baltimore,	100	
Barcelona,	350	
Bilbao,	298	
Bari,	15	
Bombay,	110	
Boston,	85	195 brls.
B. Ayres,	43	
Callao,	80	
Carril,	30	
Constantinople,	10	4 cks.
E. London,	10	12 cs.

Fume—

Genoa,	37	
Hamburg,	326	
Hong Kong,	10	
Jaffa,	20	
Karachi,	100	
Leghorn,	35	
Lisbon,	150	
Malta,	22	
Maracaibo,	60	
Melbourne,	30	
Mollendo,	50	
Messina,	100	
M. Video,	575	
Naples,	61	
New York,	250	150
Oporto,	30	
Panama,	35	
Para,	50	
Parnahyba,	10	
Penang,	200	
Pernambuco,	115	
Philadelphia,	285	
Pimental,	6	
Port Natal,	140	
Puerto Cabello,	36	
Riga,	122	
Rio de Janeiro,	39	
Rotterdam,	88	

Rouen,	34	
Saigon,	18	
San Francisco,	26	20
San Sebastian,	15	
Santander,	130	
Seville,	548	16 100 cks.
Singapore,	20	5 cs.
Sydney,	20	
Talcahuano,	40	
Tampico,	50	
Trieste,	8	
Tripoli,	25	
Valencia,	60	
Valparaiso,	110	
Venice,	25	
Vigo,	30	
Yokohama,	250	

Chemicals (otherwise undescribed)

Piraeus,	17 c.	£39
Constantinople,	2 t. 10	87
Stettin,	7	12
Reval,	4	8
Amsterdam,	1	48
San Francisco,	2	11
Philadelphia,	26	6

China Clay—

Barcelona,	100 cks.	
Bombay,	148	
Boston,	4,345	
Hio, 718		
Philadelphia,	180	
Portland, O.,	320	
Rio de Janeiro,	40	
St. Nazaire,	10 bgs.	

Chromium Trioxide—

Antwerp,	10 c.	£32
----------	-------	-----

Citric Acid—

Tampico,	5 c.	£31
Yokohama,	11	63
Havana,	5	37

Coal Products—

Aniline Co.ours		
New York,	14 cks.	
Aniline Oil		
Barcelona,	26 cks.	
New York,	10 dms.	
St. Nazaire,	5	
Aniline Salts		
Barcelona,	10 cks.	
Boston,	17	48 cs.
New York,	20	
Piraeus,	25	
St. Nazaire,	20	
Syria,	3	

Anthracene

Rotterdam,	38 cks.	
------------	---------	--

Naphtha

Melbourne,	100 dms	
------------	---------	--

French Chalk—

B. Ayres, 100 bgs.

Gelatine—

Boston, 75 bxs.

Constantinople, 1 cs.

Guan—

Malaga, 40 t. £3'0

Lime—

Bona, 3 t. 8 c. £9

Gaboon, 5 5

Magnesia—

St. John's, N'd., 7 cs.

Magnesium Carbonate—

Bilbao, 5 t. £110

Magnesium Chloride—

Rouen, 5 t. 3 c. 2 q. £17

Yokohama, 4 brls.

Manure—

Las Palmas, 56 t. 10 c. £353

Havana, 1 43

Ochre—

Philadelphia, 340 bgs.

Oxalic Acid—

Barcelona, 13 c. 2 q. £24

Paint—

Adjua, 10 dms. 9 kgs.

Alexandria, 1 cs.

Antwerp, 1 ck. 131

Bahia, 2 20

Beyrout, 19

Boca, 100 15

Cadiz, 100 20

Calcutta, 5 8

Cameroon, 2 21

C. C. Castle, 100 21

Cape Town, 100 21

Cienfuegos, 2 pbs. 1

Colon, 2 pbs. 91

Curacao, 25

Gibraltar, 56 pbs.

Havana, 1

Kingston, 353

Lisbon, 14 8

Maracaibo, 300

Macao, 1

Manaos, 4 550

Manila, 1

New York, 10 50 dms.

Old Calabar, 4 7 cs.

Port Limon, 1

St. Domingo, 12 31

St. John's, N'd., 90

San Francisco, 12 130

San Juan, 945

Shanghai, 5 170

Sierra Leone, 100 dms.

Singapore, 314 12 cs.

Sydney, 5 12

Talcabano, 50 135 7

Valparaiso, 126

Vera Cruz, 126

Painters Colours—

Alexandria, 40 cks.

Antwerp, 8 11 kgs.

Bahia, 3 brls.

Bilbao, 2

Boston, 20 50 cs.

B. Ayres, 53 16

Coquimbo, 18 91

E. London, 5

Geraldton, 4 5

Ghent, 5 40 cs.

Gothenburg, 1 22 pbs.

Guayaquil, 1

Iquique, 1

Leghorn, 14 20 cs.

Macao, 7 100

Mauritius, 13 10 16 tcs.

M. Video, 1 10 16 tcs.

N. York, 228 12 50

Para, 28 1 brl. 4 2 cs.

Port Natal, 12 16 cks.

Porto Alegre, 1 brl. 4

San Francisco, 16 cks.

Venice, 1 brl.

Victoria, Brazil, 25 1

Paraffin Wax—

Leghorn, 20 bgs.

New York, 3 cs.

Odessa, 25

Patras, 20

Pernambuco, 6 cks.

Salonica, 15 10

Smyrna, 12

Syra, 12

Phosphorus—

Pernambuco, 2 c. £28

Callao, 2 22

Vera Cruz, 6 66

Hiogo, 3 t. 15 993

Hong Kong, 17 217

Yokohama, 3 5 245

Kobe,

Shanghai, 5 65

Potash—

Para, 5 c. 2 q. £7

Potash Salts—

Guaymas, 19 t. 10 c. 2 q. £2023

Potassium Bicarbonate—

Salonica, 2 c. 2 q. £16

Potassium Bichromate—

Tampico, 8 t. 1 1 q. £21

Piraeus, 1 40

Potassium Chlorate—

Reval, 6 t. 15 c. £236

Rio de Janeiro, 5 180

Hamburg, 11 188

Lisbon, 3 110

Boston, 5 108

Gothenburg, 30 1,0 8

Leghorn, 1 10 64

Ghent, 1 10 70

Stettin, 1 40

Varna, 2 5

Pernambuco, 17 40

Calcutta, 1 10 70

Valparaiso, 7 12

Rotterdam, 1 34

Hong Kong, 4 148

Hiogo, 25 893

Shanghai, 3 126

New York, 10 5 587

Potassium Prussiate—

Havana, 1 c. 1 q. £8

Salt

Abonnema, 14 t. 16 c.

Adjua, 12 10

Akassa, 415 10

Antwerp, 240 10

Algoa Bay, 5 4

Antigua, 4 4

Appam, 10 10

Arim, 10 10

Bakana, 14 16

Baltimore, 635

Bata, 5

Bellagio, Brazil, 50

Boma, 1 cs.

Boston, 60

Bremen, 45 17

B. Ayres, 92 16

Calcutta, 10, 414 13

Cameroon, 38 0

Demerara, 27 16

Dixcove, 7 16

E. London, 5 10

Egwanga, 31 16

Galveston, 504 2

Ghent, 270 12

Gd. Bassa, 14 12

Iquitos, 15 6

Kingston, 22 6

Kinsembo, 7 3

Lagos, 160 12

Landana, 40 12

Loango, 126 1

Manaos, 10 14

Matadi, 11 8

Melbourne, 25

Mussara, 5 9

Muculla, 4 9

Newcastle, 190

N. Orleans, 615

New York, 155

Noqui, 25 4 1/2

Old Calabar, 121 4 1/2

Opobo, 100

Para, 100

Punta Gorda, 25

Rio de Janeiro, 1 450 bgs.

Rotterdam, 200

St. John's, N'd., 7

Salt Pond, 12 10

San Fernando, 20

Savannah, 664

Sierra Leone, 75 12

Sydney, 132 8

Trinidad, 121 15

Ukaka, 18 15

Valparaiso, 604 3

Vancouver, 212 10

Victoria, W.A., 250

Wellington, 127 10

Wilmington, 525 330

Winnelbah, 105

Salt Cake—

Baltimore, 95 t. 15 c. £168

Leghorn, 30 48

Antwerp, 80 105

Saltpetre—

Coquimbo, 6 t. 1 c. £8

Hilo, 5 8

Para, 1 14 1 q. 40

Sheep Dip—

Kingston Jam., 8 c. £22

B. Ayres, 8 t. 18 1 q. 250

Soap—

Accra, 455 bxs.

Algoa Bay, 1,530 13 bds. 195 cs.

Amsterdam, 55 500

Appam, 50

Assinee, 24

Arim, 95

Barbadoes, 1,478

Bathurst, 20

Belize, 3

Bombay, 32

Boston, 500

B. Ayres, 3

Calcutta, 25 cks. 6

Cameroon, 75

C. C. Castle, 385

Cape Town, 975

Constantinople, 12 12

Demerara, 800 7

Dixcove, 35

E. London, 1,800 11 bds.

Fernado, 20

Ferrol, 6 2 cks

Galata, 30

Genoa, 80

Gibraltar, 220 32 kgs.

Half Jack, 20

Hamburg, 504 250 bds.

Hong Kong, 50 dms.

Iquique, 1

Karachi, 30 4

Lagos, 187 15

Leghorn, 187 20

Malta, 150

Manaos, 150

Mandji, 25

Matadi, 297

Mauritius, 1,000 500

Melbourne, 32

Monrovia, 32

Montserrat, 70

New York, 2 1 ck. 501

Noqui, 30

Para, 200 1

Penang, 200 5

Philadelphina, 1,000

Pt. Elizabeth, 100 50 bds. 100

Pt. Natal, 1,680 50 bds. 1

Rangoon, 100 6

Rotterdam, 6 1,202

St. John's, N'd., 321 50 dms.

Salonica, 25 23

San Francisco, 400

Shanghai, 1,347

Sierra Leone, 206

Singapore, 59 50

Smyrna, 25 3,560

Sydney, 100 5

Tangier, 224

Teneriffe, 224

Trieste, 1

Trinidad, 900 1

Valparaiso, 15 3

Victoria, W.A., 40

Winnelbah, 25

Mpongwe, 20

Soda Alkali—

Alicante, 35 brls.

Messina, 70

Panama, 50

Sydney, 80

Volo, 45

Zante, 20

Soda Ash—

Amsterdam, 20 bgs.

Antwerp, 80

Baltimore, 2,760 129 tcs.

Barcelona, 40 20 cks.

Boston, 1,720 92 66

B. Ayres, 75 brls. 50

Calcutta, 100 kgs. 36

Callao, 90

Corfu, 30

Genoa, 700

Gothenburg, 50 10

Hamburg, 134 10

Leghorn, 100

Naples, 100

New York, 5,440 214 tcs. 37

Oporto, 13 13

Philadelphia, 3,128 125 270

Piraeus, 300 brls.

Portland, O., 200

Puerto Cabello, 18 20

Rio de Janeiro, 800

Rotterdam, 800

Salonica, 50 t.

Seville, 20 70

Smyrna, 150

Venice, 200 20

Yokohama, 226

Soda Crystals—

Alexandria, 50 brls.

Bombay, 100 kgs.

Boston

ria,	2 cs.
tinople,	4 dms.
on,	1
on,	12 pks.
ong,	1
on,	2 bxs.
on,	1
ay,	2
u,	6
u,	30 12 brls.
so,	6
ead--	10
o,	20 kgs.
ria,	80
o,	3
o,	30
rk,	20 brls.
loride--	32 cks.
	4 t. 14 c. £120
	9 6 3 q. 123

NCHESTER.
ending December 30th

um Carbonate--	
am,	4 cks.
gen,	40 kgs.
um Sulphate--	
ia,	1,410 sks.
o,	1,133 bgs.

Colours--

ia,	8 cs.
am,	6 cks. 1 1 brl.
	8 kgs.

Oil--

	2 dms.
--	--------

Salts--

am,	5 cks.
	3

ene--

am,	41 cks. 8 t.
-----	--------------

Acid--

am,	30 cks.
o,	52 dms.

Soda--

am,	7 cks. 2 cs. 438 brls.
-----	------------------------

als (otherwise undescribed)

am,	52 dms.
o,	3 cks. 20 kgs.
g,	3 12

eed Oil--

am,	2 brls.
-----	---------

e Salts--

am,	3 cks.
-----	--------

e--

rg,	16 sks.
-----	---------

o, 6 cks. |

burg, 1 10 cs. |

am, 12 |

od-- |

ia, 50 bgs. |

1,201 t.

am, 200 t.

Arseniate--

p,	4 cks.
----	--------

o, 30 brls. |

o, 29 cks. |

its--

agen,	64 bgs.
-------	---------

lam, 99 cks. 15 dms. |

HULL.

ending December 26th.

50 cks.
3
ium Sulphate—
135 bgs.
627

Benzol--	Amsterdam,	24 brls.
Bleaching Powder--	Hango,	106 cks.
	Stettin,	15
	Trieste,	73
Chemicals (otherwise undescribed)	Amsterdam,	55 cks. 3 brls. 8 dms.
	Antwerp,	104 bgs.
	Bari,	15
	Bombay,	116 625 36
	Bremen,	120 pks.
	Christiania,	15 2,151 slabs
	Copenhagen,	70 bts.
	Danzig,	7 cs. 2 hds.
	Gothenburg,	6 31 pks.
	Hango,	23 4
	Hamburg,	19 30 5
	Kurrachee,	157 100 brls.
	Libau,	18 pks.
	Reval,	1
	Rotterdam,	50
	Stettin,	40
	Trieste,	5
Cottonseed Oil--	Amsterdam,	2,689 c.
	Antwerp,	356
	Christiania,	17
	Dunkirk,	172
	Hamburg,	140
	Rotterdam,	377
	Trieste,	301
Disinfectants--	Bombay,	780 dms.
Dyestuffs (otherwise undescribed)	Antwerp,	23 cks.
	Bremen,	11
	Rotterdam,	3 5 cs.
Linseed Oil--	Amsterdam,	100 c.
	Bombay,	1,040
	Bremen,	302
	Christiania,	180
	Copenhagen,	303
	Gothenburg,	3
	Hamburg,	79
	Kurrachee,	50
	Rotterdam,	18
	Stavanger,	113
	Trieste,	129
Naphtha--	Copenhagen,	2 cks.
	Antwerp,	15 brls.
Painters' Colours--	Amsterdam,	6 cks.
	Antwerp,	12 1 cs. 3 dms.
	Bombay,	7 63 748 kgs.
	Copenhagen,	3
	Danzig,	6 1 pk.
	Ghent,	10
	Gothenburg,	1 16
	Hamburg,	20
	Kurrachee,	25 bgs.
	New York,	50 50 pks.
	Palermo,	4
	Rotterdam,	32 1 1 dm.
	Stettin,	17
	Venice,	10
Paraffin Wax--	Konigsberg,	60 bgs.
Pitch--	Antwerp,	404 t.
Tallow--	Amsterdam,	20 cks.
	Gothenburg,	6
	Rotterdam,	34
Tar--	Dunkirk,	100 cks.
Ultramarine--	Amsterdam,	9 bxs.
Yarnish--	Antwerp,	1 ck.
	Bombay,	3 cs.
	Bremen,	1
	Reval,	1
	Rotterdam,	4
	Stettin,	0

GLASGOW.

Week ending December 31st.

Ammonium Sulphate--	Antwerp,	252 t.
	Hamburg,	151 16 c.
	Charente,	238 14
	Demerara,	454 9
Bleaching Powder--	Calcutta,	60 t.
	Melbourne,	13 6 1/4 c.

Carbonic Acid Gas--	Rangoon,	£127
Castor Oil--	Rotterdam,	£125
Caustic Soda--	Calcutta,	36 t.
Coal Products--	Alizarine Blue	£60
	Sherbrooke,	£1,047
	Creosote Oil	£20
	France,	55
	Pitch	55
	U.S.A.,	500 t. 800.
	Antwerp,	500 t. 800.
	Caen,	500 t. 800.
	Tar,	£78
	Canada,	55
	U.S.A.,	55
	Rotterdam,	2 t. 2 c.
	Rangoon,	67
Coal Products (otherwise undes.)--	Rotterdam,	£629
Extracts--	Canada,	£171
	Sherbrooke,	315
	Victoria,	170
Farina--	Antwerp,	5 t.
Iodine--	Rotterdam,	£595
Lead Acetate--	Calcutta,	1 t. 3/4 c.
Linseed Oil--	Hong Kong,	170 glns.
Oxalic Acid--	Melbourne,	1 t. 3/4 c.
Paint--	Gibraltar,	£25. 125.
	Hio,	4 t. 5 c.
	Hong Kong,	8 1/2
	Singapore,	£119
	Ad-laide,	14 4 1/2
	Melbourne,	11 1/4
Painters' Colours--	Calcutta,	£562
	E. London,	qly.
	Melbourne,	£75. 135.
	Algoa Bay,	£83
	Bombay,	48
	Durban,	5 t. 19 1/2 c.
Paraffin Wax--	Trieste,	£460
	Western Australia,	87
Potassium Bichromate--	Calcutta,	11 c.
	Rouen,	£206
	Antwerp,	5 t. 4
	Ghent,	2 16 1/4
Salts of Potash--	Delagoa Bay,	£1,230
Soap--	Algoa Bay,	2 t. 13 1/2 c.
	St. John's Nfld.,	1 1/4
Sodium Bichromate--	Rouen,	10 t. 7 c.
	Ghent,	2 10
Starch--	Rotterdam,	2 t.
Sulphuric Acid--	Durban,	£50
	Rangoon,	225 t. 2 1/4 c.
Tallow--	Trieste,	£20
	Rotterdam,	10 t. 15 c.
Treacle--	Christiania,	17 t. 15 c.
	Algoa Bay,	2 10
	Gothenburg,	6 13 1/4
	Bergen,	10 11 1/2

TYNE.

Week ending December 26th.

Alkali--	Christiania,	1 t. 3 c.
	Amsterdam,	13 11
Ammonium Sulphate--	Hamburg,	152 t. 3 c.
Antimony--	Rouen,	4 c.
Barium--	Rouen,	25 t. 13 c.
Barium Carbonate--	Rouen,	60 t. 4 c.

Bleaching Powder--

Antwerp,	53 t. 11 c.
Gothenburg,	33 9
Christiania,	30 1
Amsterdam,	40 18
Hamburg,	9 5
Aarhus,	11 12
Rotterdam,	30 18
Drontheim,	10 17

Caustic Soda--

Antwerp,	2 t. 12 c.
Amsterdam,	6 9
Hamburg,	11 12
Rotterdam,	9 17
Gothenburg,	8

Farina--

Bergen,	6 c.
---------	------

Hydrate Alumina--

Antwerp,	5 t. 2 c.
----------	-----------

Litharge--

Gothenburg,	1 t. 17 c.
Christiania,	2 5
Rouen,	1 14

Magnesia--

Barcelona,	2 t. 9 c.
Hamburg,	19
Rotterdam,	1

Manure--

Bergen,	10 c.
---------	-------

Paint--

Rotterdam,	12 c.
------------	-------

Pyridine--

Hamburg,	1 c.
----------	------

Soap--

Arendal,	3 q.
----------	------

Soda--

Antwerp,	5 t. 7 c.
Gothenburg,	3
Christiania,	14 14
Amsterdam,	21 5
Aarhus,	20 15
Rotterdam,	10

Soda Ash--

Bergen,	12 t. 5 c.
---------	------------

GOOLE.

Week ending December 23rd.

Benzol--

Boulogne,	24 cks.
Hamburg,	23
Rotterdam,	96 18 dms.

Coal Products (otherwise undes.)--

Amsterdam,	114 cks. 2 pks.
Antwerp,	125
Boulogne,	110 5 cs. 1 dm.
Rotterdam,	152 5

Colours--

Boulogne,	1 ck.
Rotterdam,	cs.
Dunkirk,	6

Dyestuffs (otherwise undescribed)

Boulogne,	2 cs.
Ghent,	104 cks.

Manure--

Dunkirk,	191 bgs.
Ghent,	685

Pitch--

Antwerp,	250 t.
Dunkirk,	208

Soap--

Antwerp,	1 ck.
----------	-------

GRIMSBY.

Week ending December 24th.

Chemicals (otherwise undescribed)

Gothenburg,	2 pks.
Hamburg,	21 cs. 34 dms

Coal Products (otherwise undes.)--

Dieppe,	101 cks. 18 cs. 6 pks.
Hamburg,	8
Rotterdam,	10 1

Colours--

Antwerp,	6 cks. 2 cs.
Hamburg,	2 1

Soap--

Malmo,	1 cs.
--------	-------

PRICES CURRENT.

WEDNESDAY, JANUARY 6TH 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	&	8/9
Glacial	per cwt.	4/0		
Arsenic S.G., 2000	per lb.	1	4	0
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	per lb.	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	per lb.	0	0	1½
Oxalic	nett	0	0	3½
Phosphoric, 1750	per lb.	0	0	11½
Picric	per lb.	0	0	11
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	per ton	5	10	0
(Pyrites, 168°)	per ton	3	0	0
(free from arsenic, 145°)	per ton	1	7	6
Sulphurous (solution) S.G. 1025	per ton	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	per lb.	0	1	1
Arsenic, white powdered	nett per ton	24	0	0
Alum (loose lump)	per ton	4	10	0
Alumina Sulphate (pure)	per ton	4	2	6
Aluminoferic	per ton	2	5	0
Aluminium (Ingot metal 98/99½ %)	nett per cwt.	8	0	0
Ammonia, Anhydrous	per lb.	0	1	4
" 880=28° B.	per lb.	0	0	2½
" =24° B.	per lb.	0	0	1½
Carbonate	nett	0	0	3
Muriate	per ton	20	0	0
(sal-ammoniac) 1st & 2nd	per cwt.	5	&	33/
Nitrate	per ton	33	0	0
Phosphate	per lb.	0	0	4½
Sulphate (grey) London	per ton	7	17	6
(grey) Hull	per ton	7	16	3
Aniline Oil (pure)	per lb.	0	0	9½
Aniline Salt	per lb.	0	0	8½
Antimony	per ton	31	0	0
(tartar emetic)	per lb.	0	0	9½
(golden sulphide)	per lb.	0	0	10
Barium Chloride	per ton	7	0	0
Carbonate (native)	per ton	3	10	0
Sulphate (native levigated)	per ton	42/6	to	65/-
Bleaching Powder, 35 %	nett	6	12	6
Liquor, 7 %	per ton	3	10	0
Bisulphide of Carbon	per ton	13	10	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	per ton	15/-	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	7
Magenta	per lb.	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	9
Benzol, 90 %	per gallon	0	3	0
50/50	per gallon	0	2	10½
Carbolic Acid (crystallised 40°)	per lb.	0	0	7½
(crude 60°)	per gallon	0	2	1
Creosote (ordinary)	per ton	0	0	2
(filtered for Lucigen light)	per ton	0	0	2½
Crude Naphtha 30 % @ 120° C.	per ton	0	1	1
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	per ton	1	8	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	7
"Lucigen" and "Wells" Oils	per ton	0	0	0
Copper	per ton	49	7	6
Sulphate	per ton	17	15	0
Oxide (copper scales)	per ton	42	10	0
Glycerine (crude)	per ton	37	10	0
(distilled S.G. 1250°)	per ton	70	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	10	0
Sulphide (antimony siag)	per ton	2	0	0
Lead (sheet) for cash	per ton	12	17	6
Litharge Flake (ex ship)	per ton	14	10	0
Acetate (white)	per ton	23	10	0
(brown)	per ton	15	0	0
Carbonate (white lead) pure	per ton	16	10	0
Nitrate	per ton	18	10	0
Lime, Acetate (brown) (ex ship)	per ton	4	17	6
(grey) (ex ship)	per ton	8	5	0
Magnesium (ribbon and wire)	per oz.	0	2	3
Chloride (ex ship)	per ton	2	7	6
Carbonate	per cwt.	1	17	6
Calcined Magnesia	per ton	8	15	0
Sulphate (Epsom Salts)	per ton	2	15	0
Manganese, Sulphate	per ton	16	10	0
Borate	per cwt.	2	10	0
Ore, 70 %	per ton	3	10	0
Methylated Spirit, 61° O.P.	per gallon	0	1	8
Naphtha (Wood), Solvent	per ton	0	2	8
Miscible, 60° O.P.	per ton	0	2	9
Oils:—				
Cotton-seed	per ton	16	0	0
Linseed	per ton	17	10	0
Petroleum, American	per gallon	0	0	7
Stearine	per ton	20	10	0
Phosphorus (yellow)	per lb.	0	2	2
(red)	per lb.	0	2	8
Potassium (metal)	per oz.	0	3	7
Bichromate	nett per lb.	0	0	4½
Carbonate, 90% (ex ship)	per ton	17	15	0
Chlorate	per lb.	0	0	4½
Cyanide, 98%	per ton	0	0	11½
Hydrate (Caustic Potash) 90 %	per ton	24	5	0
(Caustic Potash) 75/80 %	per ton	20	10	0
(Caustic Potash) 70/75 %	per ton	20	0	0
Nitrate (refined)	per cwt.	1	1	6
Pernanganate	per cwt.	3	17	6
Prussiate Yellow	per lb.	0	0	5½
Sulphate, 90 % (ex ship)	per ton	9	15	0
Muriate, 80 % (do.)	per ton	8	10	0
Silver (metal)	per oz.	0	2	5½
Sodium (metal)	per lb.	0	2	11
Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
(Caustic Soda-ash) 48 %	per ton	4	5	0
(Carb. Soda-ash) 48 %	per ton	4	0	0
(Alkali) 58 %	per ton	3	10	0
(Soda Crystals)	per ton	2	0	0
Acetate (ex-ship)	per ton	14	5	0
Arsenate, 45 %	per ton	14	10	0
Chlorate	per lb.	0	0	5
Borate (Borax)	nett, per ton	19	0	0
Bichromate	per lb.	0	0	3½
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	per ton	9	5	0
(74 % Caustic Soda)	per ton	8	5	0
(70 % Caustic Soda)	per ton	7	2	6
(60 % Caustic Soda)	per ton	6	2	6
(pure liquor 90° Tw.)	per ton	3	15	0
77/78 % powdered (99 % hydrate)	per ton	13	10	0
Bicarbonate	per ton	6	10	0
Hyposulphite	per ton	5	5	0
Manganate, 25 %	per ton	15	0	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	7	10½
Nitrite, 98 %	per ton	30	0	0
Phosphate	per ton	12	10	0
Silicate (glass)	per ton	4	10	0
(liquid, 100° Tw.)	per ton	3	10	0
Stannate, 40 %	per cwt.	3	2	9
Sulphate (Salt-cake)	per ton	1	1	0
(Glauber's Salts)	per ton	1	10	0
Sulphide	per ton	6	15	0
Sulphite	per ton	5	0	0
Strontium Hydrate, 100 %	per ton	8	0	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	6½
Barium, 95 %	per lb.	0	0	4½
Potassium	per lb.	0	0	6½
Sulphur (Flowers)	per ton	7	10	0
(Roll Brimstone)	per ton	6	10	0
Brimstone: Best Quality	per ton	4	15	0
Superphosphate of Lime (26 %)	per ton	2	15	0
Tallow	per lb.	18	5	0
Tin Crystals	per lb.	0	0	4½
English Ingots	per ton	63	10	0
Zinc Spelter	per ton	18	0	0
Chloride (solution, 100° Tw.)	per ton	5	2	6

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

No. 504.

SATURDAY, JANUARY 16, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Progeny of 1896..... 33	Resin Distilling Plant..... 62
Mental Improvements in Vacuum Pumps..... 35	Exports of Petroleum from U.S.A. 62
Patent List..... 36	Improved Gas Furnaces..... 63
Acts of Latest Complete Specifi- cations..... 36	Manufacture of Cyanides..... 64
oved Storage Tanks..... 37	Our Book Shelf..... 65
"Water Spout" Pump..... 38	Tables for Use in Agricultural Analysis..... 67
of Dowson Fuel-Gas..... 39	Report on Manure Material..... 68
oved Acid Cooler..... 40	Tar and Ammonia Products..... 69
Paints, and Colours..... 41	Miscellaneous Chemical Market..... 69
Painters' Column..... 44	The Metal Markets..... 69
oved Valves for Corrosive Liquids..... 45	Liverpool Oil and Colour Market..... 69
Power Driven Pump..... 45	Tyne Chemical Report..... 69
uary—1896..... 45	Hull Paint, Oil, and Colour Report..... 70
ation of Towns' Refuse..... 50	West of Scotland Chemicals..... 70
Oil Motor Cars..... 51	New Companies..... 70
Report Appliance Works..... 54	Gazette Notices..... 70
Laboratory Hints and Chemical Notes..... 58	Imports..... 70
	Exports..... 73
	Prices Current..... 76

Notices.

All communications for the *Chemical Trade Journal* should be addressed, and Cheques and Post Office Orders made payable to—

DAVIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

The Terms of Subscription, commencing at any date, to the *Chemical Trade Journal*,—payable in advance,—including postage by part of the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Readers will oblige by making their remittances for subscriptions by cheque or Post Office Order, crossed and payable to "Davis Bros."

Articles, reports, and correspondence on all matters of interest to Chemical and allied industries, home and foreign, are solicited. Respondents should condense their matter as much as possible, on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

30 Words and under.....	2s. 6d. per insertion
Each additional 10 words.....	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

30 Words and under.....	1s. 0d. per insertion
Each additional 10 words.....	0s. 3d.

Other Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.



CONSIDERING the unsettled state of the industrial atmosphere at the commencement of 1896, and the fears and hopes that were then rife concerning the stability of the brighter future that was promised, the year has left ample room for congratulation. When reviewed systematically and continuously, the years as they succeed each other must strike the reviewer as being strangely akin to a series of dissolving views. With the revolution of time, the mental pictures and impressions of one year, are first dimmed as the New Year's incidents are projected upon the mental screen, and finally obliterated. Thus the opening of the past year was rendered hazy by the overshadowing trials of 1895, but a rift in the dark clouds of industrial depression helped to illumine the future, and now, looking back there is much reason to be satisfied with the way the year has resolved itself.

There has of course been the usual amount of "clearing up" to be done, but there has also been much actual progress made. This has been specially the case in regard to the

ADVANCES IN SCIENCE.

The Alma Mater has naturally been much occupied with her twin offspring, Argon and Helium, and her attention has been centred in their up-bringing. Judging by the following it would seem that they are in Spartan hands, as the principal studies of their characters have been directed towards their behaviour under electric discharge, the percentage of Argon present in respirable air, the condition in which Helium exists in minerals, and the physical properties of both. Argon shows a decidedly truant disposition, for Professor Bamberger reports that he has discovered 1 per cent. in the gases of an Austrian well.

Limited as is the field of research we have to confine ourselves to for the purpose of this review, the range of subjects in which other good work has been done is extensive. The one great event of the year has been Prof. Röntgen's discovery which, owing to Gladstone's observations on the difference in the action of salts and metals when exposed to ordinary and Röntgen rays, promises to be of considerable service in chemical research. Divers and Haga, following former lines, have been studying the problems of the reduction of Nitrososulphates; Prof. Meldola has devoted his abilities to the Chemistry of Phenol Derivatives; Hartley and Ramage have noted the occurrence of Gallium in Cleveland Clay Ironstone, while Prof. Hartley has also investigated the Spectrum of Cyanogen as Produced and Modified by Spark Discharges. The relations between the viscosity of liquids and their chemical nature have been elucidated by Thorpe and Rodger; Flemming and Dewar have been determining the magnetic permeability of liquid air and oxygen, and Prof. A. G. Perkin's work on the compounds of natural yellow colouring matters, promises to afford a means

of distinguishing the quercetin group from other natural classes of non-nitrogenous, yellow, mordant, dyestuffs. This last work by its practical nature very easily brings us within reach of that near relation of chemical research

TECHNOLOGY.

In our last review we ventured to express the belief that the question of technical education was beginning to be better understood, but judging by the animated discussion the past year has witnessed, we seem to have known nothing about it at all. On the other hand, perhaps the more accurate information is that practical men have begun to realize the importance of doing the thing thoroughly, and decided to make more rapid progress instead of dawdling along with the easy going deliberation of scientific *dilettanti*.

We now have the Birmingham, Manchester and Salford technical schools actively at work. The last is young as yet, and the first though but little older is progressing well. It has the advantage of starting well financially, the expenditure being safely below the income. The Manchester School is now of such long standing and good repute that it needs no further chronicling. Then there has been the opening of the Gossage laboratories at the University College, Liverpool, and also the Davy-Faraday Laboratory. The latter was referred to at length only a few weeks back, but the act of recording it in this summary has intentionally been left till now, so that the close ties which bind technology with research might be duly emphasised. Of those developments more closely related to electro-chemistry mention should be made of the new or extended Darmstadt and Gottingen laboratories for physical and electrical experimental work.

Uninterrupted by external discussions, but constantly progressing with the times, the City and Guilds of London Institute continues its good work. The teaching centres have been increased by 27, and the number of students is nearly 2,000 more than in 1895. There was an increase of about 700 in the number examined. It is pleasing to note that the percentage of failures has once more fallen from 43.4 to 42.4. There is still a great lack of competent teachers for the trade classes.

As is our wont, general matters and incidents relative to technology are not reviewed here, the index of the *Journal*, which is issued every six months, giving alphabetically all there is to record. Yet the following selection from the work done in the sphere of what we have ventured to define as "technological research" must not be omitted, though it is admitted that the distinction we make is a very fine one. Metallurgists and chemists alike will be interested in H. Moissan's studies on the metallic carbides and his preparation of metallic manganese, nickel and cobalt in the electric furnace. Among other investigators, Prof. Hummel has been working on the colouring matters in various British plants, while Perkin and G. V. Allen have devoted attention to Sicilian sumach. In regard to tanning, Procter and Towse have dealt with some Indian kip cures, and the possibilities of Pyinkado bark (a waste production in Burmah) have been suggested by Dr. Watts. Lastly, there is the work of M. D. Dougal on the effect of heat on aqueous solutions of chrome alum, and Ayrtton and Cooper's study of the effect of temperature on the E.M.F. of Clark cells. Bacteriology is as much if not more to the front, work similar to that which is done in the foreign laboratories at Lyons and elsewhere, being constantly in progress at laboratories now existing in London, Leicester, and the North.

While it is thus evident that progress is being made in technological matters in Great Britain, similar activity is noticeable in other countries, and so wide is the sphere in which science is playing a dominant part in manufacturing operations, that we now have to include the far East—even to Japan—where industrial development has been very marked. Speaking of industrial matters brings us by an easy transition to the

CHEMICAL AND ALLIED INDUSTRIES.

In connection with these the past year has in one way been specially interesting as it marked the centenary of the Tyne Alkali Trade, a Leblanc works having been started in 1796 by Lords Dundas and Dundonald, Messrs. Aubone, Surtees, and the brothers Losh. The last two were apparently the pioneer spirits, and had to contend with a salt duty of £36. per ton, which was obviated by making sulphate of soda direct from brine. Another great feature has been the extension of the American

chemical manufacturing industries, the Solvay Process Company having made great extensions at Detroit, while there has been a rumour of an English company carrying the competitive war into the American camp. The other principal feature has perhaps been the development of electro-chemical processes. On the Tees-side chlorine manufacture and petroleum refining have found a home. Something like a pool in the Sicilian sulphur trade has been attempted, but so far does not appear to have been very successful. The growth of the aluminium industry in the United States has been accompanied by the installation of the works of the British Aluminium Company at Foyers, while *vice versa* the electrolytic production of chlorate of potassium has seemingly made equal progress at Niagara. The manure industry has been introduced to two new fertilizers, nitragin and silicon nitride, and the Fertilizers' Act has been taken advantage of a little more, but while there are only 29 counties in which more than 10 analyses have been made, and 29 that have made none at all, prosecutions are not likely to be frequent. Sewage treatment has been greatly to the front and is referred to here because, under this title the cognate question of the purification of works' effluents, is generally included. Manchester is seeking to make a departure, or rather reversion, in the disposal of its effluent, concerning which more will be heard this year, while the Peebles case will also closely affect manufacturers. The over-hauling of the Local Government Board will also make a difference before long. The Dangerous Trades Committee have been busy, but their labours have not been very productive, save that indiarubber works have now been scheduled. Black smoke prosecutions have been "thicker" than ever, and, if recent developments are any guide, the chemical trade has taken the first step towards making a determined stand for its rights. They may and may not succeed, though municipal bodies have certainly had one or two instances during the past year of the evils which attend wanton corporate inflexibility. The Salt Subsidies Compensation Board has now got to work, and its further progress will be watched with interest. Although the Conciliation Board has passed away, the coal trade appears fairly settled and free from labour disputes, and long may it remain quiescent. It is practically in this direction only that the chemical trade has to look out for squalls. There have been several legal cases of interest, the chief of which have been the Incandescent Gaslighting cases, the Magnolia Metal Company's infringement cases, Reddaway v. Banham, and the Lancashire Explosives Company v. Roburite Explosives Company.

The crop of conversions into limited concerns has been unusually large, including Messrs. Crosfield and Son, Ltd., the Drogheda Chemical Manure Co., Ltd., Fisher and Co., Ltd., Forbes Abbott and Lennard, Ltd., D. and W. Gibbs, Ltd., the Hartley-Blenkinsop Linseed Oil Co., Ltd., Major and Co., Ltd., Manlove, Alliott, and Co., Ltd., Ramsbottom Paper Mill Co., Ltd., and Stanley Morrison and Co., Ltd. The principal new ventures have been the Anglo-Sicilian Sulphur Co., Canaigne Syndicate, Ltd., European Petroleum Co., Ltd., Great Horseless Carriage Co., Ltd., Leverett-Blake Tanning Co., Ltd., Marico (Transvaal) Saltpetre Co., Ltd., the North British Chemical Syndicate, Ltd., the Scottish Cyanide Co., Ltd., and the Standard Cyanide Manufacturing Co., Ltd. In general mining and industrial companies the investor has been invited to subscribe over 150,000,000 of capital during the year.

Contrary to the usual arguments concerning inventive activity and good trade, with the improvement in trade

PATENTS DURING 1896,

have been more plentiful than ever, the total of 30,165 applications having easily eclipsed all former records. Acetylene and incandescent lighting have been responsible for a good many patents, while there has been an increase in chemical and sewage plant and processes. The chief decline has been in manures. Of applications for letters patent for *Chemical Processes* there have been 381; *Chemical Plant and Apparatus*, 130; *Electro-Chemical Processes*, 35; *Electro-Chemical Apparatus*, 24; *Paints and Pigments*, 34; *Sewage*, 46; *Artificial Fuel*, 18; *Oils and Fats*, 39; *Smoke Prevention*, 21; *Soap*, 28; *General Hygiene*, 11; *Explosives*, 26; *Manures*, 13; *Boiler Desincrustants*, 3; *Artificial Stone*, 13. On comparing these figures with those given in the *Journal* No. 452 p. 35, it will be seen that, with the above-named exceptions, there have been but few numerical alterations.

comforting to reflect that with a better year there has also been relative freedom from too much

LEGISLATION.

the Bills that have passed into Acts there have been the Truck Amendment Bill, the Motor Car Bill, the Cheshire Subsidences Bill, the Bills Amending the Storage of Explosives under the Act of 1861, and the Management of London Sewers. The other Bills that are named are the Metric Weights and Measures Bill, Trades Disputes Bill, and a minor River Pollution Bill. As Parliament meets next week, Petroleum legislation, which has been hotly debated during the last year, will probably soon be once more under discussion, while 55 electric lighting provisional orders have been given, as in 1895. During last year the Government was also petitioned to schedule carbolic acid as a poison. In passing to the few

MATTERS OF GENERAL INTEREST

we have to deal with many things about which we may expect more in the future than has been heard in the past. The water question is of absorbing interest, and we fear, a long way off from being finally answered, as is also the proposed Inland Seawater

Motor cars are also drawing the notice of many, and we have about them elsewhere in this issue. It seems probable that a race will be started to run them between Liverpool and Manchester carriage of goods, before the year is out. Acetylene, with its possibilities, is not getting along so well as incandescent gas lighting, but a company in this sphere having successfully solved within the last few months the Law Courts the patent puzzle it had to work out. Acetylene, while growing in favour as a resuscitant, is bringing in its train a host of patents referring to apparatus for its appliance. Lastly, Law Reform is being steadily advocated in many quarters, and a practical issue may not be long delayed.

We must leave 1896 and turn to face the future. Encouraged and boldened by the rewards of the past we should be able to meet with its difficulties with a good heart, and armed let us hope, with the wisdom of former failures, fight with fortitude to the front access.

MENTAL IMPROVEMENTS IN VACUUM PUMPS AND HIGH-SPEED AIR COMPRESSORS.

chemical works, the blowing engine, the air compressor for work on the acid eggs, and also the air pump for obtaining any desired

are all improvements of plant, which may be consolidated into one piece of machinery. It is one of these improved air compressors and exhausts that we shall discuss in this article. There is room for improvement in the actual working of compressors, and the Continental compressors are on a patent principle recently introduced in chemical works. In some of the chemical works in this country are using these air pumps, and as they have been found to give full satisfaction, we thought the particulars concerning them would be of service and interest to our readers.

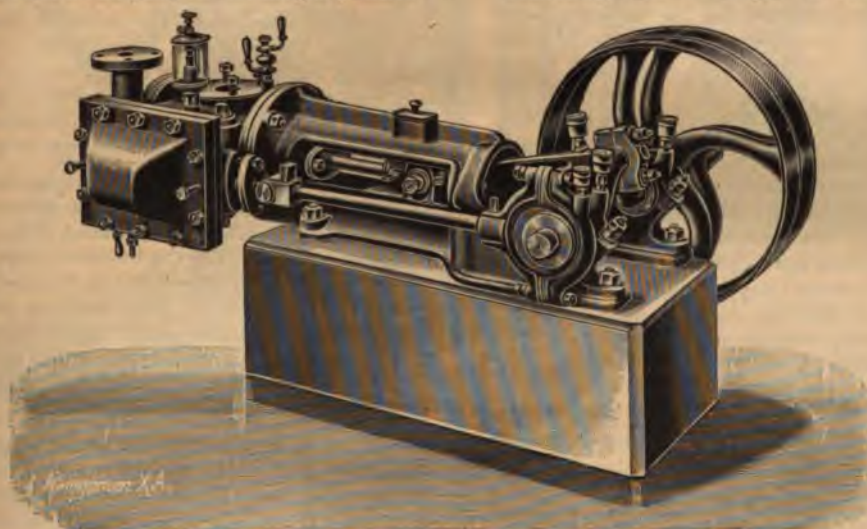
The valve air pumps generally in use have a particular disadvantage. Taking for example the case of compressors, the clearance at the end of the stroke involves the presence of more or less compressed air, which, when the piston is receding, has to be expanded to the atmospheric pressure, before any fresh air can be drawn in. The piston is thus making a considerable part of the stroke without any practical effect. For instance, assuming a pump is exhausting a receiver up to a 90% vacuum, the atmospheric air in the clearance has to be expanded to this vacuum before any fresh air can be drawn from the receiver. Assuming, therefore, a clearance of 5% the piston has to make 50% of its stroke before the real work begins. Yet if the clearance is made too small, certain well known dangers and difficulties have to be faced, and if the expedient of filling the clearance with water is resorted to, the corrosive effect of the latter on the metal constitutes a serious drawback.

This difficulty has been met by the happy idea which led to the construction of the patent slide valve pump we illustrate. This pump is so constructed that at the end of the stroke the air in the clearance is let out through a separate port to the other side of the piston, and hence in the case of the above-mentioned compressor, there will be atmospheric pressure in the clearance, and in the case of the vacuum pump 1-10th of the atmospheric pressure only. It will thus be seen that in both cases, the moment the piston begins to recede on the return stroke it forthwith starts to draw fresh air. This advantage enables the firm of Alfred Wenner, Manchester, who have fitted up a large-sized installation in this country, to guarantee, under all circumstances, a vacuum of 29 inches. Special pumps constructed for certain purposes have given even better results.

Another most important feature of these pumps forming a further, and perhaps still more important advantage is, it seems to us, to be found in the circumstance that capacity for capacity, and in spite of their very substantial construction, these slide valve air pumps can be offered at very favourable prices. The reason for this is simple, as instead of non-governed spring valves, slides similar to those used in high-speed steam engines are used, so that a very rapid piston stroke is permissible, whereas spring valve engines are bound to run at a low speed. The consequence is, that the same effect can be obtained from a smaller model of pump, costing proportionately less to make; while, moreover, it is a well-known fact that a high piston speed means economy of steam in a pump just as much as in an ordinary steam engine. The same pumps can be used either as compressors or as vacuum pumps, and can be driven by belt as illustrated, or by steam or electricity, as desired.

Considering these advantages, we cannot be surprised that large

Continental works like the Badische Aniline and Soda Fabrik, and the Hoechst Farbwerke use pumps of no other system, and also that first-class English concerns have had a number of these pumps from the firm of Alfred Wenner, Manchester, who supply them as a speciality. Their salient features are: Simplicity in detail, the use of slides in the place of valves, the equalisation of pressure, noiseless running, and the



ability to dispense with corrosive injections. Four notable points.

REVIVAL OF THE SALT TRADE.—After three months' depression there are signs of activity in the Winsford and Middlewich salt trade.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in Lubricators. J. Rigby. 4. January 1.
 Ascension Pipes for the Manufacture of Coal Gas. T. J. Meek, H. Davidson, and J. Southam. 6. January 1.
 Device for Measuring Fluids. J. Wilkinson. 27. January 1.
 Treating Substances containing Potassium. E. J. Ball. 28. January 1.
 Coal Washing Apparatus. J. Moore. 30. January 1.
 Furnaces for Burning Powdered Fuel. S. A. Everett. 38. January 1.
 Disinfecting Sewer Draining Wells. T. W. H. Partridge and E. J. Abbott. 38. January 1.
 Heating Air for Drying Purposes. W. Glover. 31. January 1.
 Manufacture of Floorcloth. H. W. Godfrey. 30. January 1.
 Treating Iron and Steel Sheets in the Manufacture of Polished Sheets. J. D. Grey and T. Gwynne. 34. January 1.
 Filters for the Purification of Waste Waters, Sewage, etc. W. Bagshaw. 107. January 2.
 Manufacture of Soap. R. Holliday and Sons, Ltd., and T. Holliday. 112. January 2.
 Improved Furnace Grates. W. P. Thompson. 121. January 2.
 Improved Washing Material. G. Rezek. 123. January 2.
 Process and Apparatus for Producing Acetylene Gas. F. Trendel and J. Mücke. 139. January 2.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

These abstracts are specially prepared for the Chemical Trade Journal, and ALL RIGHTS of publication are RESERVED. This is the earliest series of abstracts of Chemical and allied patents accessible to the public.

Improvements in Apparatus for Burning, Cement Making Materials, Lime, Chalk, and the Like, and the Obtaining therefrom of Carbonic Acid Gas. W. A. Taylor, 2, Star Hill Villas, Rochester. Eng. Pat. 98. January 1, 1896.

This patent is practically an adaptation of the familiar coal gas plant. The cement-making materials are calcined in a bench of retorts, the mouths of which are coupled to a main running horizontally along the front of the bench.

The materials are first partially calcined with the mouths of the retorts open so as to assist in expelling any contained moisture and organic matter. The retorts are then closed and exhausted. As soon as carbon dioxide begins to come off, the exhauster is disconnected and the retort main, which has likewise been freed from air, put in communication with the gas-holder. In this way practically pure carbon dioxide is obtained. An arrangement of flues for the waste gases, which are thus used to heat a slurry-drying floor, is described. There are seven figures.

Improvements in the Manufacture of White Arsenic. T. P. Sims, Promenade, Mount Pleasant, Swansea, and W. Terrill, 42, St. George's-street, Swansea. Eng. Pat. 9,076. April 30, 1896.

Certain ores such as "Slurrie" and "Hardhead," which are essentially arsenides of iron, and usually cannot be made to yield their arsenic, are "Bessemerised" in a fixed water-jacketted converter, fitted with a tap-hole at the bottom and air nozzles about an inch above the level of the tap-hole. The charge may be melted in the converter, but by preference should be melted in an adjacent furnace and teemed into the converter. The blowing with air or steam is continued until arsenious oxide ceases to be given off. When tapped the residue consists essentially of an oxide of iron slag and a matte which can be worked up for the copper and silver, &c., it may contain. The arsenious oxide is retained in a battery of condensers of the usual type.

Improvements in Methods of Separating the Cyanogen Compounds from Gas Liquor, or other Solutions Containing Cyanogen Compounds. G. R. Bower, for H. Bower (deceased), Twenty-ninth Street and Gray's Ferry-road, Philadelphia, U.S.A. Eng. Pat. 361. January 6, 1896.

A salt of iron is added to cold gas liquor to form ferricyanide and sulphocyanide of iron (see patent 8,330/95, C.T.J. 493, p. 226). The ammonia is then distilled off as usual with lime, after which an acidified

solution of cupric chloride is added, producing a mixed precipitate of copper ferricyanide and sulphocyanide. This precipitate is agitated while still wet with iron filings or reduced iron, whereby the copper cyanide compounds are decomposed, producing the corresponding iron compounds and metallic copper. This mixture is next heated in an autoclave, under a pressure of 70 lbs. to the square inch, when the metallic copper combines with the sulphur in the sulphocyanide to form copper sulphide, leaving ferrocyanide of iron, from which the alkaline ferrocyanides can be obtained.

Improvements in the Separation and Purification of Colouring Matter from Crude Cottonseed Oil. E. S. Wilson, "Arthog," Goddington-road, Strood, and E. Stewart, 4, Queen Victoria-street, London. Eng. Pat. December 20, 1895.

The oil is purified by "fractional precipitation," with or without the addition of a soluble sulphite. The oil, after being treated with an alkaline lye at 120° to 130° F., is separated from the brown alkaline liquid, to which is added a solution of magnesium or calcium chloride in sufficient quantity to effect precipitation. The mixture is then boiled, and after separation of the lime or magnesium soaps, the latter are decomposed with acid, the colouring matter being precipitated in the form of a paste, which can be used for dyeing and printing purposes.

Improvements in Apparatus for Purifying and Deodorising Butter and other Solid Fats and Oils. J. G. and A. Hargrave, The Larches, Heslop Mersey, Manchester. Eng. Pat. 22,873. October 15, 1896.

Means are described for granulating the butter, or fat, and washing the same with a spray of water whilst being agitated. In this way the butter is purified and deodorized. The process is specially intended for application to the treatment of margarine or other butter substitutes.

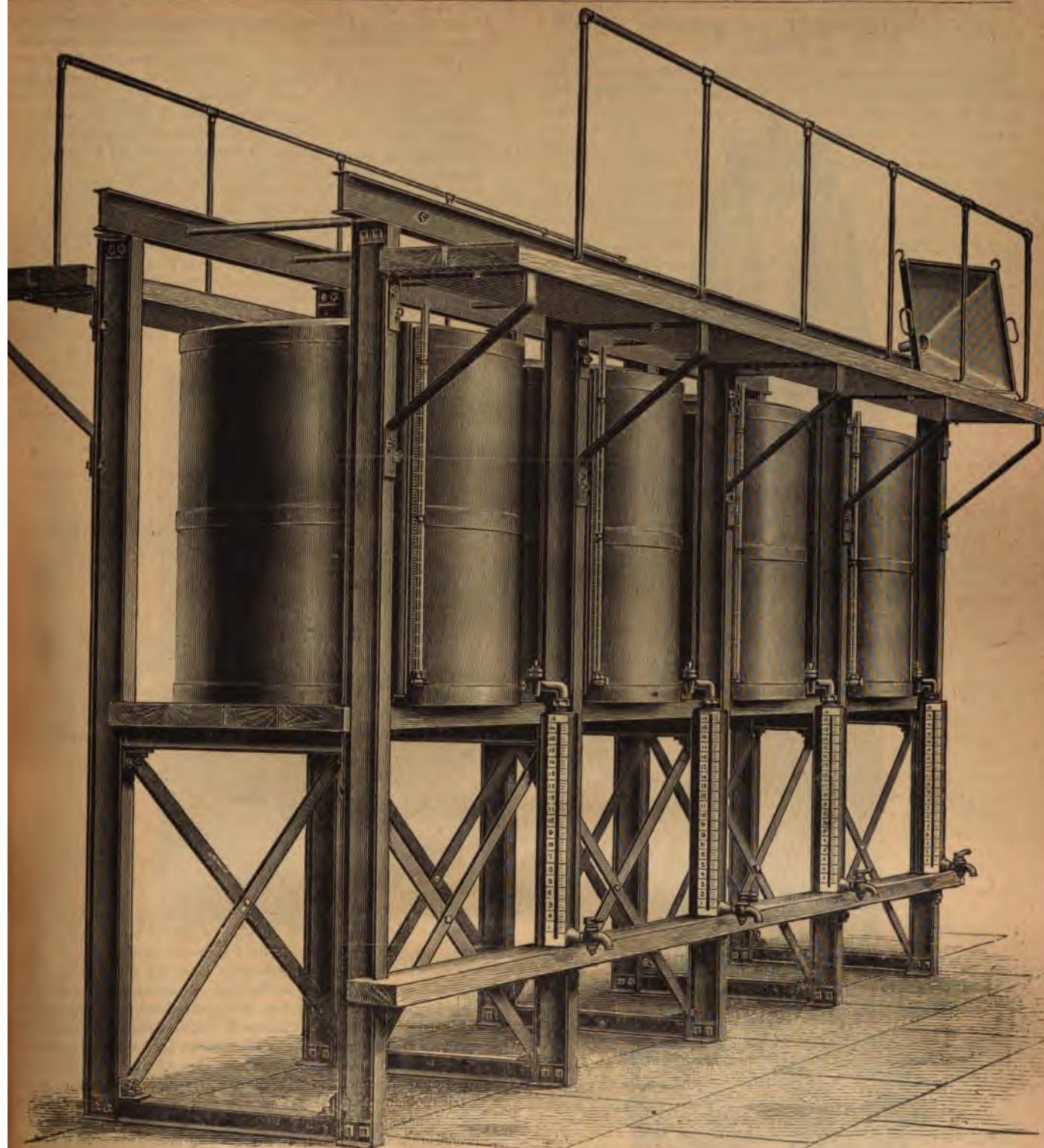
An Improvement in the Preparation of Electrolysed Chloride Solutions for Disinfecting, and Like Purposes. E. Hermite, E. J. Paterson, and C. F. Cooper, all of Pownal-road, Dalston, London. Eng. Pat. 2,197. January 30, 1896.

The above named have taken out many patents in connection with the preparation of disinfectants by the electrolysis of sea water. It has been found that when so treated it tends to lose its disinfecting properties on keeping, so a small amount of caustic soda or other alkali is added to fix the chlorine evolved.

THE HARBEN GOLD MEDAL.—At a meeting of the Harben Nomination Committee, held last month in connection with the British Institute of Public Health, Professor Max von Pettenkofer, scientific director of Liebig's Extract of Meat Company, was nominated Harben gold medallist for 1897. The medal was founded in 1895 by Henry Harben, Esq., J.P., for the recognition of eminent service to the public health, and one presentation is made every year.

THE VENEER HAT CASE.—In the Appeal Court, last week, the plaintiffs in the case of Cheetham v. Heginbotham appealed from an order of Mr. Justice Kekewich, in which he reversed the decision of the Registrar of the Chancery Court of the County Palatine at Manchester in granting an order on the defendants to answer certain interrogatories (C.T.J., 499, p. 372.) The defendants were licensees under the patent, and the plaintiffs desired to get investigation of certain accounts which they contended they were entitled to under their licence. The appeal was dismissed, with costs.

MESSRS. WILLIAM GRAY AND CO.—This well-known Hull firm are maintaining their supremacy as wholesale caterers for the oil colour and drysaltery trades. They also devote special attention to the plumbing and glazing trades. They do not confine themselves to oils, pigments (white lead being a speciality), varnishes, glue, and ready-made paints in cans and bulk, but also stock a great variety of painters' tools and accessories such as putty knives, "doctors" zinc sash bars, being in fact suppliers of plumbers', builders', and ironmongers' requisites as well as paint and colour manufactures, in which branch they hold the enviable position of the good cup, by needing no bush.



IMPROVED STORAGE TANKS.

IN the chemical, soap, and oil trades the best way of storing liquids required in manufacturing processes, or produced by the same, is always a matter for consideration. By adopting a good system economy is effected, as the losses by spilling in handling and such like are avoided, to say nothing of evaporation.

The arrangement we illustrate is therefore noteworthy. It has been made by Messrs. W. Oxley and Co., of Tudor Works, Pendleton, and

has proved so beneficial for the storage of the perfumes used in soap making that other installations are on order.

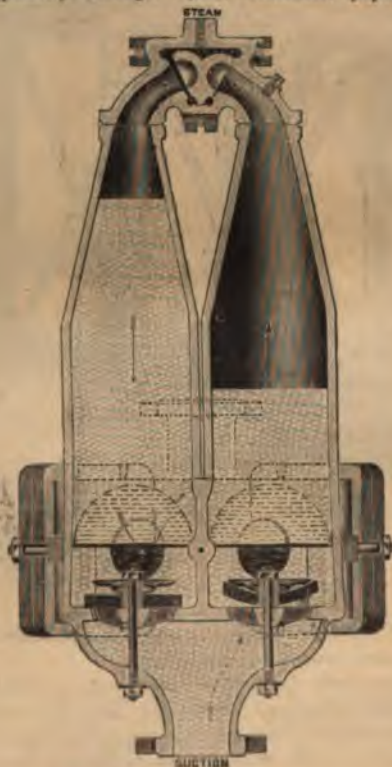
The tanks are charged from barrels, which can be rolled into position on the overhead transverse beams, the tundish, as shown, being specially constructed to avoid spurting. In addition to the customary contents indicator, it will be noticed that a gauge is fixed at the foot of each tank, in which definite quantities can be accurately measured off, thereby checking the consumption and saving the inevitable losses of manipulation, entailed through accidents and evaporation.

THE "WATERSPOUT" PULSATING STEAM PUMP.

PUMPS on the pulsating principle are now well-known on account of their simplicity, convenience, and portability, but the mere fact



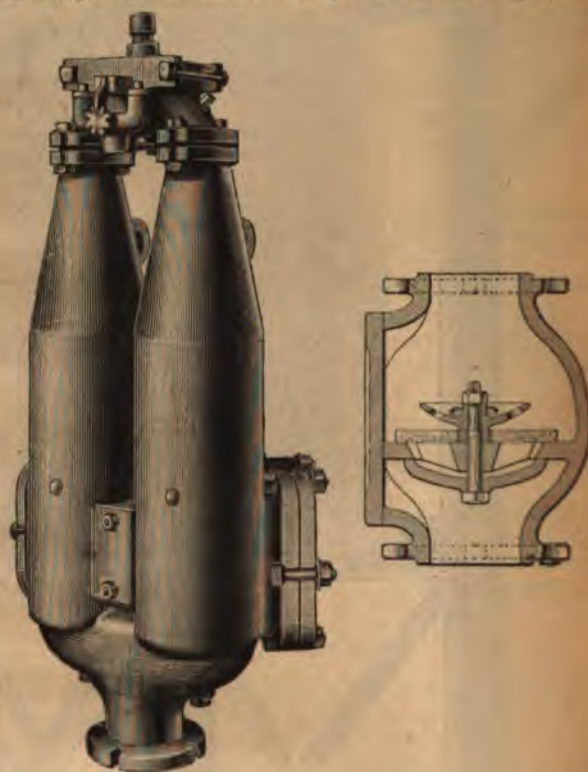
of their popularity amongst dyers, bleachers, papermakers, and



chemical manufacturers does not prevent the introduction of improvements in their construction.

By the aid of the accompanying illustrations, and the following brief notes, we purpose pointing out some of the characteristic features of the "Waterspout" pump, which are worthy of closer attention.

The head casting is accurately faced, fitted, and bolted to the top of the working chambers which, tapering upwards, terminate in a triangular shaped steam chest, on each side of which are formed the carefully faced steam valve seatings. The steam valve is in itself one of the most important improvements. It is shown in position in the sectional elevation, from which it will be seen that it is V shaped, with flat facings to correspond with the flat seatings. The great advantage of this particular form of construction is that, when owing to excessive wear the valve wants refacing, it can be done in a few minutes by any decent mechanic with no other tackle than a vice and file. The bearing bar is also so cast that it allows the valves to be readjusted to the seatings after refacing. The air valves are very simple, and can be adjusted with the greatest ease. There being only one screw by which to



regulate the air, the same amount is always admitted, alternately, to the working chambers, thereby ensuring a steady action. A tumblers, which engages in a slot in the head of the air regulator, keeps it fixed, so that when once set, no amount of vibration can cause it to work loose. Clack, metallic, or rubber disc valves are fitted to the pumps according to requirements, but, as a general rule, the rubber discs are used, as being the most serviceable for the majority of cases. The openings to allow access to the water valves are large, and so arranged that only two covers need removing to examine the four valves. Regarding the retention valve it must be noticed that when the cover is taken off any obstruction either above or below the valve can be at once removed. These pumps, which are supplied by the Waterspout Engineering Company, 1, North Parade, Manchester, will be found most convenient for pumping chemical solutions into crystallizers, and similar purposes.

THE BRITISH ASSOCIATION.—The British Association Committee at Toronto has drawn up a provisional programme for the annual meeting next August, subject to the approval of the Council in England. The meeting will last from the 18th to the 25th, the Dominion and provincial Governments co-operating with the local committee to ensure the success of the gathering.

SOME USES OF DOWSON FUEL-GAS.

[SPECIALLY CONTRIBUTED.]

A few years past the gas-producing apparatus made by the Dowson Company, of Westminster, has been widely known, because practical manufacturers and engineers were startled to find that, even with gas engines of moderate size, the consumption of gas converted into Dowson gas was only 11b. per indicated h.p. per hour. As a result, gas engines are now made in large sizes and of improved designs, and numerous engines are working all over the world, even in places so remote as Persia, Japan, Peru and Arizona). The cheap gas made in the Dowson Company's plant. It is, however, a fact tolerably well known, and although they serve as a useful reminder to readers looking for cheap motive power, it is desired to deal in this brief article with the applications of Dowson gas for heating purposes of a character more especially interesting to the chemical and allied trades.

Junction, Manchester. The very satisfactory results, which were the outcome of a thorough trial, led to the gas-making plant being doubled.

It has recently been adopted for heating the rectifying vessels used in the concentration of sulphuric acid, in the system introduced by Mr. T. G. Webb, of Manchester. The preliminary trials in this new sphere have already shown that this particular application will lead to very important developments. With gaseous fuel the heat can be regulated to a nicety, and the wasteful breakage of rectifying vessels, which required to be heated to a high temperature, is thus avoided. This point alone is of the highest importance, and recommends the system of gaseous firing apart from the question of fuel economy.

Dowson gas is also used for heating pickling baths for various purposes, as well as being applied industrially for nickel-plating, tinning, soldering, brazing and stoving. Although outside the province of purely chemical industry, it is satisfactory to know that very important firms use the Dowson Company's plant for re-heating iron plates and bars, and for annealing malleable iron.



TWO DOWSON GAS GENERATORS.

Dowson gas, for instance, is used in different ways for drying and heating various products, one of which in particular is the condensation of glycerine for which Messrs. Watson and Sons, the makers of the famous Soap, have long employed it.

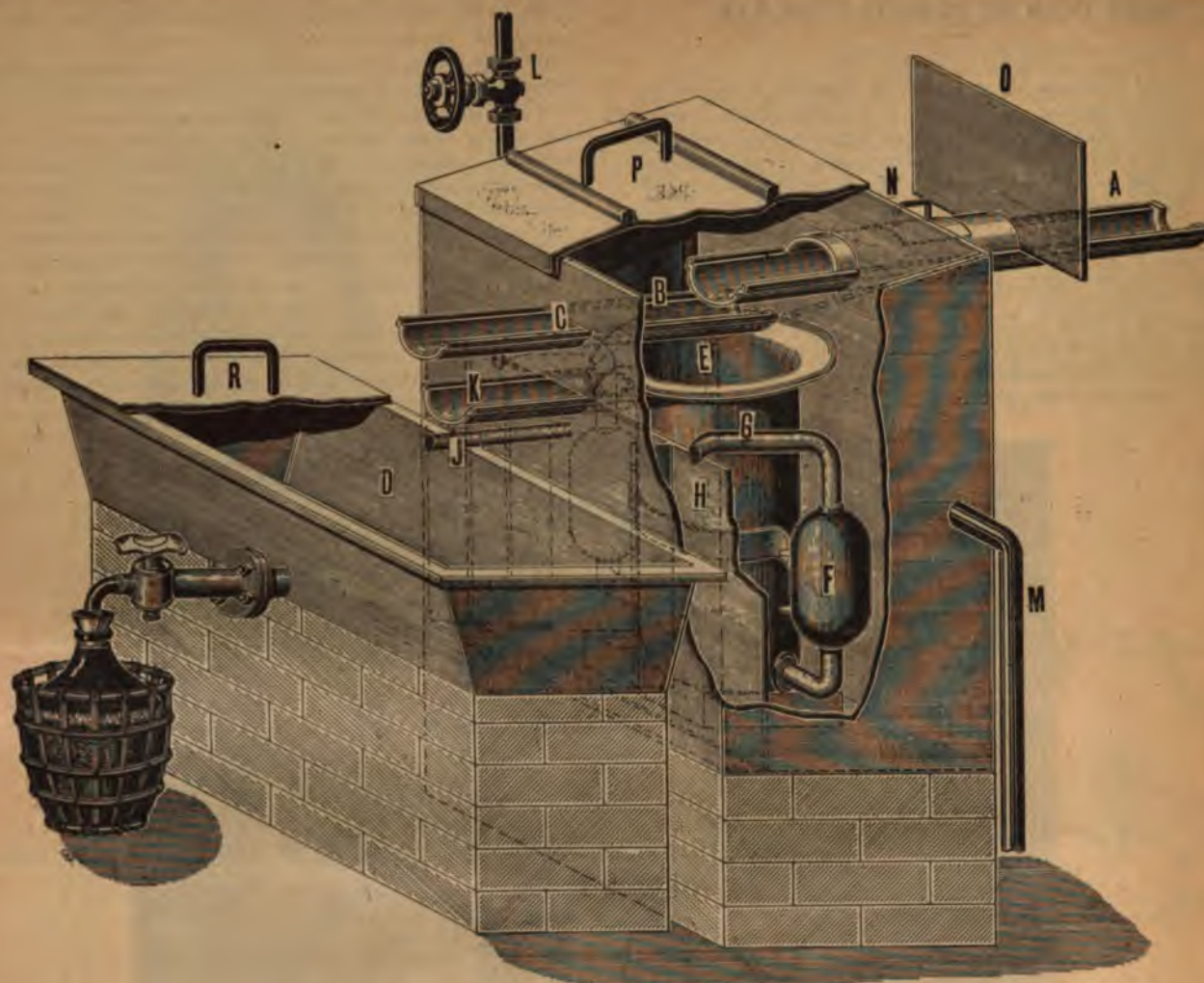
Dowson gas is also used for heating the drying rooms of a starch manufacturer, and there is a large saving over the former method of drying over open fires.

At the Larnie Works of the now well-known British Aluminium Company, Ltd., their material is heated in calciners with Dowson gas at a temperature of 2,000°F., from which it emerges as a fine white powder consisting of oxide of aluminium. The good results obtained have led to much larger Dowson plant being installed at Larnie, and the British Aluminium Company are now putting in the same apparatus for some unusually large furnaces they have built at works at Greenock, both of which works have been referred to in these columns.

Dowson gas is also used for heating, boiling etc. pans and other vessels by the Chloride Electrical Storage Syndicate, Ltd., of Clifton

The accompanying illustration represents two Dowson gas generators, the gas from which can be taken to any furnaces or apparatus requiring to be heated. It would be rather late in the day to go fully into the method by which this gas is produced, nor is it necessary, as already the production of Dowson gas has been fully described in the back numbers of the *Journal*. In these from time to time we have dealt with the suitability of this gaseous fuel for chemical manufacturing operations, on account of its being one way out of smoke prosecutions. On other occasions we have discussed its advantages from a thermo-chemical point of view.

The following brief re-capitulation of the process can hardly be out of place, however, after so long an interval. The gas is made by passing a mixture of superheated steam and air through incandescent fuel in the generator. For serving gas engines, or for any application of the gas requiring great cleanliness and freedom from sulphur compounds and ammonia, it is best to use anthracite coal for making the gas, but where the gas is taken direct from the generator to a furnace, ordinary gas coke or local hard coal can be used. Except in special cases there is no need to wash the gas for furnace work or to incur the expense of a gasholder.



WEBB'S ACID COOLER.

AN IMPROVED ACID COOLER.

FOR a number of years past the cooling of rectified acids has been a problem which has called forth the ingenuity of manufacturing chemists.

At the same time, perhaps, there is no other form of apparatus concerning which so many and varied opinions exist. Every manufacturer seems to flatter himself that he has in vogue the best contrivance for cooling. In a way perhaps he has, because his particular arrangement suits his purpose.

Nevertheless there is no reason why a convenient and compactly-arranged contrivance should not prove serviceable and welcome to those who have to deal with hot liquids that require constant cooling. The apparatus which we illustrate herewith has been invented by Mr. T. G. Webb, of Queen's Chambers, 7, Market-street, Manchester. Its use is not confined to the cooling of acids only, though it is specially suited for the treatment of corrosive fluids.

This universal adaptability arises from the fact that the cooling vessels can be made of almost any material, so that they can be constructed to withstand the action of the strongest acids or varied to suit other liquids.

The other main features of the cooler are its compact construction and the ease with which it is kept wholly under control.

The form which we illustrate is specially intended for the cooling of rectified vitriol, as used with Webb's Patent Continuous Process for the

Concentration of Sulphuric Acid, &c., and for this purpose the drawing, which is partly in section, is sufficiently explicit to indicate the working principles. With this apparatus liquids can be cooled from a temperature of 600 degrees Fahrenheit to the ordinary temperature of the atmosphere, that is to say, 60 degrees Fahrenheit or thereabouts.

This cooling is regularly attained while the liquid to be cooled is continuously running into the apparatus hot, and leaving it at the same speed, cooled to the requisite degree.

Further particulars concerning this simple but efficient cooling contrivance, as well as permission to inspect the same, can be obtained by making application to the inventor at the address mentioned above.

FURNESS MINES FLOODED.—The exceptionally heavy rains of last week have been the means of throwing some hundreds of Furness iron miners out of employment. At the Mouzzel mines, near Dalton-in-Furness, owing to the water, one of the troughs gave way, with the result that the Colorado pit was flooded. At Lindal Moor the workings became flooded to a considerable depth, and, to make matters worse, the pumps at the Lowfield pit broke down. The pumps of a neighbouring pit were got to work to keep down the water, but they were not powerful enough, consequently it may be some time before the men can resume work. In various parts of North Lonsdale a good deal of low-lying land is under water, owing to the streams overflowing.

Oils, Paints, and Colours.

OCHRES AND EARTH COLOURS.

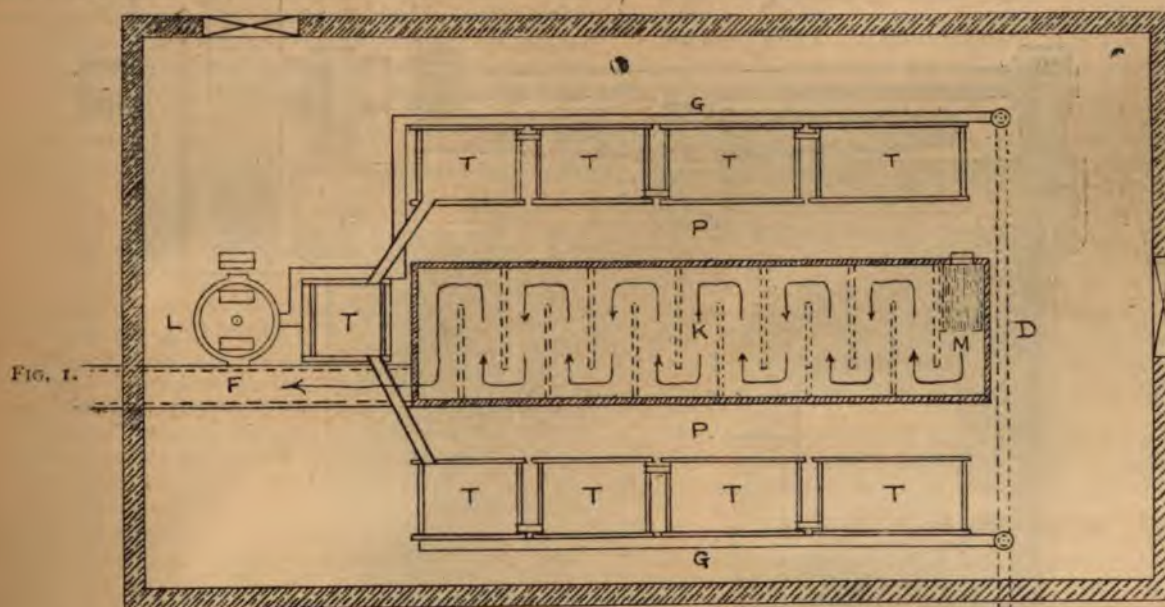
[SPECIALLY CONTRIBUTED.]

Ochres.—Earth colours in general are one of the most important classes of pigments which the paint maker has at his disposal. They are found in many places in earth beds or deposits composed to a greater or less extent of coloured earths, which are of various shades of red, yellow, brown, green, &c. In many cases these deposits are worth working on account of the substance being serviceable as a pigment or colouring material in the manufacture of paints.

Now it is not every deposit which is available for this purpose. The writer has seen samples of earths from Russia, America, Canada, Spain, South Africa, France, and many districts in England and Wales; and though some have been excellent pigments, others have been useless.

It will be worth while perhaps to point out here the special characters which cause an earth to be serviceable as a pigment. First of all it may be noted that the useful earth may be found deposited in two ways—either almost pure in a mass by itself, or more or less intermixed with other earths of a useless character—the gangue or matrix as it may be called. In the first case little or no trouble is met

than with a white lead paint, using equal weights of the two pigments. This illustrates "covering power." But it will be found that while the white lead paint has effectually hidden the surface on which it has been applied, the zinc white paint has not done so, it is stated therefore to be deficient in "body." Now it is desirable that a pigment should have both "body" and "covering power," the former being the more important. It will thus be seen that although different in point of fact, "body" and "covering power" are very closely connected, and depend largely on the structure or condition of the pigment. They are found chiefly in those substances which have an amorphous structure, as is the case with white lead, china clay, and many other products. Substances which are crystalline in character, such as some kinds of barytes and gypsum, are deficient in these two properties. It is important, therefore, that an earth colour to be of value should have body and covering power in great preponderance. There are many products found in nature which are more or less coloured, as for instance coal, galena, calcite, certain graphites, garnets, &c., which cannot be used as pigments because they do not possess either body or covering power. It is to be noted that these have a highly crystalline structure, and it is to be also noted that no matter how fine the substance be ground it always retains its crystalline character, and it is this circumstance which causes it to be deficient in the properties under consideration.



with in utilising the material, but in the second case some trouble will certainly be experienced; and whether the deposit will pay for extracting will all depend upon whether the actual colouring matter can be easily and cheaply separated from the matrix or gangue with which it is associated.

The earth must have a good colour, this is important. A product with a weak washed-out colour is of no value, and as a pigment will not pay for extraction.

Secondly, it should possess fairly good colouring power, although this is not essential.

There are two properties which pigments should possess to make them of value to the painter, these are body and covering power. Many persons consider these to be synonymous and use the terms accordingly, but they relate to two different properties, and a pigment may possess either one or both of them. Take for example zinc white and white lead. If equal weights of these pigments be made into paint by means of oil and turpentine in the usual way it will be found that zinc white will make a larger volume than white lead, and that therefore a greater surface can be covered with a zinc white paint

It may perhaps be pointed out here that pigments used in paint-making are roughly divided by painters into two classes—"stainers" and "body colours"—the latter are used for the purpose of imparting body to the paint, the former for giving colour; thus for instance a blue paint may contain white lead as a body colour and Prussian blue as a staining colour. A yellow paint similarly may contain white lead as a body colour and chrome yellow as a staining colour. Of course some paints may only contain one pigment which will answer the two purposes. A "stainer" pigment is one which like Prussian blue, ultramarine, vermilion or carmine, may possess strong colouring powers, but is perhaps rather deficient in other ways, or it may perhaps be too costly to be used to make the paint with entirely.

If an earth colour be very strong in colouring power it may be of use in painting as a "stainer" even if its body be weak, but in such a case its main feature must be strongly developed, or otherwise it cannot compete with the strong manufactured or artificial staining colours. As a rule earth colours are not notable for any great depth or strength of colour, but there are many deposits which possess good body and covering power combined with some degree of colour. Such can and do find much use in the manufacture of paints.

METHOD OF PREPARATION.

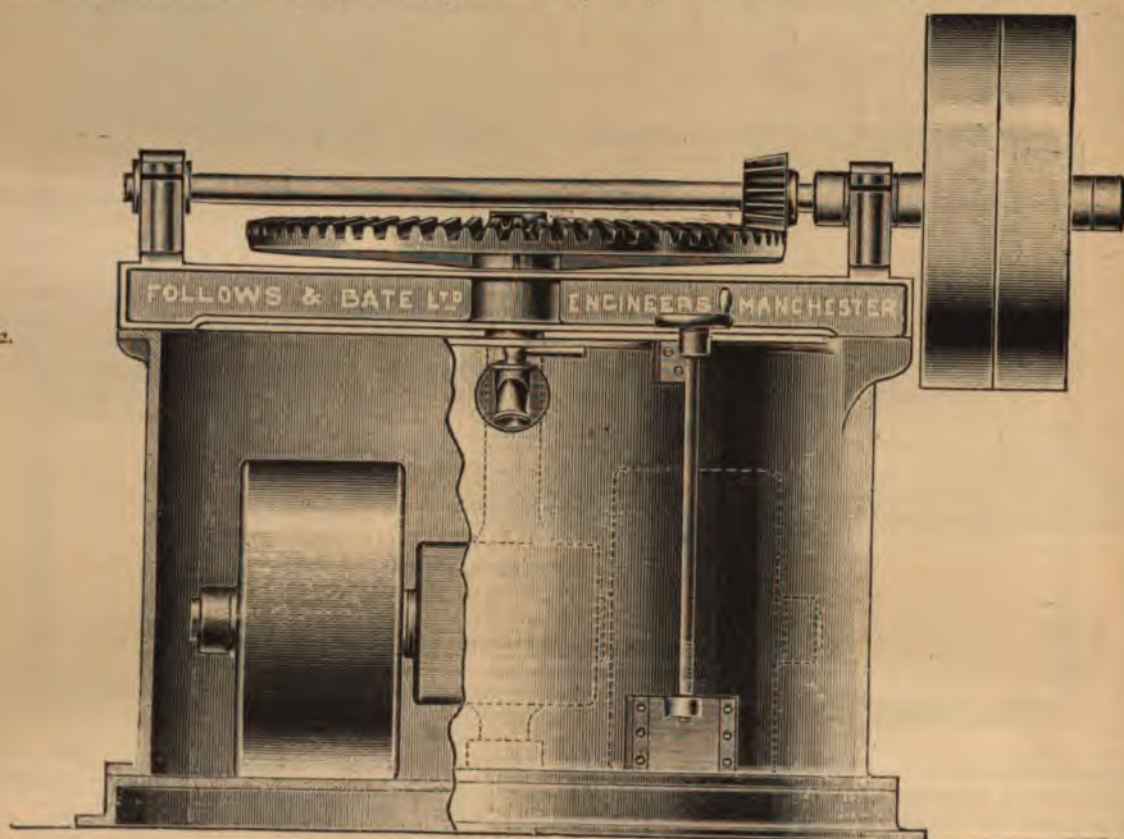
The preparation of earth colours to fit them for use as pigments is comparatively simple. It is rarely that a deposit is found of such a character that it can be put on the market without some amount of preparation. As stated before, as a rule the actual pigment or colouring matter is associated with some inert material, the matrix or gangue, and the object of any method of treatment is to remove the latter. This is simply and cheaply effected by a process of levigation with water, which may be briefly described as mixing the crude material with or without a preliminary grinding with water, stirring the mass up and then allowing the whole to settle. The matrix or gangue being usually in the form of coarser and heavier particles than the coloured earth, separates out first and soon settles to the bottom of the tank in which the operation is carried on, when the water containing all the pure colouring matter in suspension can then be poured or run off into another tank, in which the colour is allowed to settle out. It is then collected and dried and is ready for the market.

The details of the process to be followed will vary with different kinds of earth colours, and each case must be considered by the colour

The water from the buddle tank is caused to flow through one set of these tanks until they are filled, when the current is transferred to the other set, and the contents of the first set are allowed to settle out. Owing to the laws which govern the settling of levigated products, and the manner in which the tanks are built, the coarser portions settle in the first tank, the finer portions in the last tank. When all has settled out, the clear supernatant water is run off by the troughs G into the drain D, and the mass of pigment which has settled in the tanks is dug out. In thus doing so some care must be taken, as possibly the deposit in the first or even in the second tank may not be sufficiently fine to make a good pigment, in which case it is better to send it to another grinding mill, subject it to a second and more thorough grinding and send it through the settling tanks again. As for the material in the last tanks, this will be sufficiently fine for use as a pigment, and some makers send it to be dried at once, but it would be preferable to throw it on to filter beds to drain as much water from it as possible before drying, and so effect a saving of fuel.

Probably by the time that the first set of tanks have settled out and emptied in the manner indicated, the second set of tanks will have been

FIG. 2.



maker on its own merits, attention being paid to the character of the crude material.

A plan of a levigating plant for the treatment of this class of colours is given by Mr. G. H. Hurst in his *Manual of Painters' Colours, Oils and Varnishes*, which by the courtesy of the publishers (Messrs. Charles Griffin and Co.) we are enabled to reproduce in Figure 1.

The first proceeding is to give the crude material a preliminary grinding; this is best done by an edge-stone mill. It is not necessary to grind it very thoroughly, the main object being to bring the material into such a condition that the gangue can be easily separated from the pure colour, but something more will be said on this subject later on. In Fig. 1 this grinding mill is shown at L. Usually a current of water runs through the grinding mill which carries the ground material into a tank T placed next to it which is known as the buddle tank, here the coarser particles settle out. This buddle tank is a communication with two sets of settling tanks T, T, T, T, which as will be seen in the drawing, vary in size, the last or one furthest from the buddle tank being the largest.

filled, and are ready for settling out, therefore, the first set of tanks are once more brought into operation.

Another mode of working is to run off the top liquor from the settled colour, then without taking the colour out run more material in from the buddle tank until the tanks are filled, settling as before and repeating all the operations until the tanks get too full of colour to be worked satisfactorily, when the colour is removed.

SIMULTANEOUS GRINDING AND LEVIGATION.

For the purpose of this treatment Messrs. Follows and Bate, Ltd., make a levigating grinding mill which is shown in Fig. 2. It consists essentially of a pair of edge runners working on a bed fixed at the bottom of a cylindrical iron tank. Water is allowed to run into the tank so that the grinding is done under water. Near the top of the tank is placed a large tap, the water is allowed to flow through in a steady slow current, and it carries with it through the tap into the settling tanks all the finer particles of pigment, the quality being regulated by

peed of flow, a rapid current giving a coarse grade, a slow current a fine grade of colour. A large sliding door at the bottom of the tank is used for running off the coarse particles or gritty matter. As a rule, with a good quality of crude material, this needs doing only once a day.

This grinding mill works very well, and is quite capable of dealing efficiently with any class of crude material. The amount of work done will naturally vary with the character of the crude material. If it be soft and powdery, as are many of the natural earth colours, a large quantity can be run through, while if it be hard and gritty, a day's work will give a much smaller yield. The mill requires from two to three horse power to drive.

The plan of the levigating works in Fig. 1 shows in the centre a drying arrangement, M K F. This consists of a shallow iron pan, about six to eight inches deep, so as to expose as much surface as possible in proportion to the amount of material being dried. This pan is supported on brick pillars shown in dotted lines, these pillars and side walls and the tank being so arranged as to form a long and tortuous flue, K, from the fireplace M, placed at one end of the arrangement. The hot gases from the fire have, as shown by the arrows, to travel in a circuitous manner before they pass by the flue F into the work's chimney. By this means they pass under a great surface of the tank, and give up to the latter almost the whole of their heat, thus the drying of the colour in the tank is more efficiently done than if a simple straight flue were employed, as is done in some forms of drying stoves. It is in the drying that the greatest source of expense in the preparation of such pigments as are under consideration is met with, and any arrangement of plant which will conduce to the reduction of this expense should be adopted. The amount of coal or fuel which is required will be found to vary, for some earth colours will absorb more water than others, but as a rule one to one and a half tons of coal will dry ten tons of colour, providing the latter is thrown on to the drying pans in as stiff a paste as it is possible to get it.

THE MANUFACTURE OF STEARINE.

[SPECIALLY CONTRIBUTED.]

OF late years considerable development has taken place; this is due to two causes—first, the extended use of stearine in the manufacture of candles; and, secondly, to the great increase in the demand for glycerine, which is a bye product of the stearine manufacture. It may be advisable first to say a few words as to the chemistry of the subject. Fats, such as tallow, palm oil, cocoa nut oil, etc., are compounds of glycerine, or, rather, the basic radicle of glycerine, with two or more acids, the so-called fatty acids. The most important of these are stearic acid, the characteristic acid of tallow; palmitic acid, the characteristic acid of palm oil; both these acids are solid. Another acid is oleic acid, which is a liquid acid, present in almost all oils and fats, particularly in the liquid oils, such as olive oil, cotton oil, etc. The combination of stearic acid and glycerine is known as stearine, that of palmitic acid and glycerine as palmitin, that of oleic acid and glycerine as olein. Besides these three acids other fat acids are known to be present in particular oils and fats, as, for instance, linolic oil in linseed oil, and ricinoleic acid in castor oil; with these however we have no concern at the present moment. When any of the fats named are boiled with a solution of caustic soda they undergo the operation known as saponification, which is that the fat is decomposed, glycerine is set free, while the fatty acid combines with the alkali to form soap. If now the soap be treated with sulphuric acid it is in turn decomposed, and the fatty acid is liberated in the free condition. When tallow or palm oil are thus treated there is obtained a mixture of stearic or palmitic acid, with oleic acid, according to the fat used. By maintaining the mixture of fat acids at moderate heat, just below the melting point of stearic or palmitic acid, these solid acids tend to crystallise out, and then by placing the mass in cloths and subjecting them to pressure the oleic acid flows out, leaving the solid stearic or palmitic acid behind; this article forms the stearine of commerce. The method of preparing the fatty acid above indicated is at once expensive and roundabout, and in practice other and more economical plans are employed. In the manufacturing processes in use to-day two principles are employed, the one first described by Chevreul, that when fats are heated under pressure with a comparatively small quantity of lime

they are completely decomposed into a mixture of lime soap, free fatty acid and glycerine, and by subsequent treatment with a little sulphuric acid all the fatty acid is obtained in the free condition. The other principle which was devised by Messrs. Wilson and worked by Price's Patent Candle Company, consists in heating the fats in a current of superheated steam, when they undergo hydrolysis breaking up the elements of water and forming fatty acids and glycerine. Sometimes this process is worked in connection with a treatment with sulphuric acid which facilitates the decomposition of the fat. Each process has its disadvantages and advantages which will be pointed out presently.

Stearine manufactured by the lime process is usually known commercially as "saponified stearine" while that produced by the distillation process is known as "distilled stearine," but from a practical point of view there is no difference between them, both may be used indiscriminately for the same purposes.

The apparatus required for carrying out the "distillation" process as constructed by a well-known firm of London engineers, consists essentially of two portions, a still and acidifying vessel with several adjuncts. The acidifying vessel is made of copper, about 7 ft. in diameter by 8 ft. high and weighs 39 cwt. The fat is treated in this with from 3 to 6 per cent. of sulphuric acid, the strength of the acid being 1.82 to 1.84 sp. gr. Generally the mixture of fat and acid is heated by a current of superheated steam sent through it. After standing the mass is blown over into a charge tank placed above the still. The still is made of copper, 7 ft. 6 in. in diameter and 8 ft. deep. It is heated by a furnace, and is in connection with a superheater. Prior to running into the still the mass is boiled with water in the charge tank, this cleanses the fat from all excess of acid and makes it ready for the still. The fat in the still is subjected to the joint action of direct heat and of superheated steam, it is decomposed, the products passing over into an upright tubular condenser where they are condensed and fall into a box, there separating into two layers, the upper one of fatty acids, the lower one of water containing the glycerine. The fatty acids are then subjected to hydraulic pressure to separate the solid stearine from the liquid oleic acid.

The "saponification" process is carried on in an autoclave under pressure. The fat is first melted, then mixed in a mixing tank with revolving stirrers, with from 3 to 6 per cent. of its weight of lime previously made into a milk with water and sieved from any particles of grit.

The autoclave is a boiler-shaped vessel made of copper, of from $\frac{3}{4}$ " to an inch in thickness, sometimes fitted with an agitator, and made large enough to hold three tons of fat. It is supported on one end in a brick-work chamber. When all the fat and lime has been run in, high pressure steam is sent into the autoclave until the pressure reaches about eight atmospheres, the length of time ranging from four to eight hours. Then the passage of the steam is stopped and the contents allowed to rest, when they separate into two layers, the lower one—the "sweet water"—containing the glycerine, the upper being a mixture of fatty acids and lime soap. Both are run out into separate tanks, the sweet water to be treated for glycerine, the fatty acids, &c., into a lead-lined tank. Here it is treated with hot dilute sulphuric acid, which decomposes the lime soap and liberates the fatty acids. These are collected and subjected to hydraulic pressure, as is the case with the distillation process. Also the fatty acids may be further purified by distillation if necessary.

We may now sum up the relative advantages and disadvantages of these two processes. By the lime process a larger percentage of glycerine (10 per cent.) is obtained from the fat than with the distillation process, which only gives about 3 per cent. As glycerine is such a valuable article of commerce just now, the lime process is most in favour at present. Again, with the lime process a somewhat less amount of tarry matters is produced, which means a larger yield of valuable products. The distillation process yields a larger proportion of solid fatty acids (from 60 to 65 per cent.) than the lime process, which only yields about 50 per cent. This is an advantage, and is probably due to the isomerising action of the sulphuric acid on the oleic acid. Where the fatty acids are to be the sole object of the manufacture, then the distillation process is to be preferred. If glycerine is desired, the autoclave process is the better of the two.

Paper-Makers' Column.

BAMBOO.

Many years ago the late Mr. Routledge, following his successful efforts to introduce the use of esparto as a source of pulp for paper-makers, made extensive experiments in the same direction with bamboo cane, and published a pamphlet bearing on the practical aspects of the question.

The pamphlet was itself printed on paper made from bamboo pulp, probably one of the most practical methods of laying the possibilities of a new manufacture before practical investors. Since that period, however, the use of bamboo as a raw fibrous stock for paper-makers has not made much headway. Paper-makers who have tried to reduce the cane to pulp have found that the conditions of boiling, with regard to the quantity of caustic soda and time required, were somewhat different to the usual methods in use in paper-mills.

The boiling, too, was to a great extent regulated by the quality or hardness of the cane under treatment. Hard, well-matured canes, are somewhat difficult to handle. Specially constructed boilers are found to be necessary owing to the great amount of labour required to deal with the canes in a practical way. Hence paper-makers, who have been enterprising enough to practically try the virtues of bamboo as a paper-making material, have, so to speak, only nibbled at the work, no quantity of any moment having been regularly converted into pulp and paper.

Owing to the introduction of cheap wood cellulose, the chances of a new fibre-yielding stock making any marked headway are now much less than in former years. Wood is so very cheap, as also the methods of obtaining good paper fibre from it, that only an exceptional kind of raw stock has a chance.

Bamboo possesses some characteristics so distinct from wood cellulose, no matter by what method the latter is produced, that there is some justification for thinking it a likely fibre to take a prominent place in the art of paper-making. The fibre is long, strong, and flexible, and possesses good felting properties. Besides, it bulks fairly well, and can be treated in the beater with ease to yield a good close sheet of paper. In the raw bleached state it feels spongy and substantial.

The characteristics of the plant vary a good deal. Much depends upon its growth, and at what period of its age it has been cut. It is usually brought to this country in a matured state, as strong, hard canes, which are difficult to cut and as difficult to digest. If, however, as has been suggested, the plant were in some way crushed and in a measure prepared for the paper-maker, its reception as stock would be much more favourable than it is.

SODA PROCESS.

Any data relating to this interesting plant and bearing upon its features as a source of paper pulp, has a special claim upon the attention of the paper-maker because of its great abundance, rapid growth, and comparative cheapness.

Bamboo cane belongs to the same botanical order as straw. The length of the fibre is 0.354 inches, and the diameter 0.00063 inches. The fibres themselves are fine, regular and smooth, their walls being uniform and the central canal small. These fibres are mixed with a good deal of intercellular matter which can be washed away by continual washing. As this, however, tends to yield a close sheet of paper, excessive washing should be avoided.

Müller has given the amount of cellulose found in bamboo as 50.3% in the air dry cane containing 8.53% of moisture. It seldom contains more than 2.0% of mineral matter, notwithstanding its hardness.

The outer cuticle is composed of a silicate. In one sample examined the percentage of ash = 1.60, of which 51.25% consisted of silica, and 9.25% of carbonate of lime, while 6.07% was carbonate of magnesia. The above yield of cellulose, namely, 50.3%, is never obtained in practice owing to the solvent action of the caustic soda and the system of washing in vogue in mills. There is a very appreciable difference in the yield of pulp by the bisulphite process as compared with the soda process.

As a general rule the cost of treatment with caustic soda under pressure is higher in proportion to other fibres of the same order. The walls of the cane are thicker and harder, their texture being so dense that it is difficult for the soda fluid to penetrate into them. A stronger solution of caustic soda and a higher temperature are therefore employed to reduce the stock to pulp. The proportion of caustic to dry cane varies with the size or age of the latter. The spent soda lyes, too, are more difficult to deal with than those from esparto, the extracted matter being of a different character. Lyes from bamboo are apt to froth excessively when being treated for the recovery of the soda in Porion and other soda recovery plants.

The following practical data relate to the boiling of cane which, when whole, measured from three to four inches in diameter. The cane was crushed between rollers before shipment, and without further preparation was put into the digesters.

CONTENTS OF CHARGE.

Weight of cane put in boiler ..	52 cwt.
Volume of caustic lye	1,600 gallons
Total lbs. of 60% caustic soda in lye.....	1,741 lbs.
Steam pressure	90 lbs. above atmosphere.
Maximum temperature	331° Fah.
No. of hours under pressure ..	15

The proportion of caustic soda to raw stock was 33.6 lbs. of 60% to 1 cwt. cane, a quantity which will be admitted on all sides as being very high. Less matured cane would, however, not require so much.

The pulp obtained was dark coloured, resembling soda wood, before bleaching. By using fully 25% of its weight of dry bleaching powder, reckoned on the air dry weight of the unbleached pulp, it was bleached to a pale yellow colour. The ligneous parts of the plant are difficult to entirely remove by simply digesting in caustic soda, and, therefore, to obtain the maximum effect in bleaching, the contents of the poacher are heated to about 120° Fah. Of this bleached fibre, it was estimated that not more than 40 parts were obtained from 100 parts of cane. The yield, therefore, is not more than what is obtained from straw on an average.

BISULPHITE PROCESS.

The mineral contents of the plant, however, are such as to lead one to believe that the bisulphite method of boiling would prove cheaper, and yield a fibre as equally pure and good as the soda process. Direct experiment has proved this to be the case, as the following results show.

The bamboo cane selected for the purpose was one and a quarter inches in diameter, and, as a preliminary, was crushed by passing it through a pair of rollers.

The crushed cane was then placed in a lead-lined boiler, and completely covered with a bisulphite of lime solution, having a specific gravity of 1.040, equal to 8° Twaddell. The boiler and its contents were gradually heated, precisely as in the case of wood boiling, and when the operation was finished, and the boiler emptied, the cane presented every appearance of being well boiled. The pulp was soft, a pale yellow in colour, and was readily washed with water.

The actual yield obtained from 100 parts of this cane was 42.8 parts of air dry pulp, containing 10% of water.

The unbleached pulp was lighter in colour than the corresponding pulp obtained by the soda treatment, and first turned a very deep red when bleaching powder solution was added to it. With 23% of its weight of dry bleaching powder it did not bleach to a good colour, but remained of a yellow tint. It was only by the use of permanganates that a pure white was obtained.

NON-INFLAMMABLE CELLULOID.—The "Revue de Chimie Industrielle" announces that a method of rendering celluloid non-inflammable has been discovered by a M. Asselot. Celluloid is dissolved in ten times its weight of acetone, and is mixed in the proportion of five to one with a solution of magnesium chloride in three times its weight of alcohol.

IMPROVED VALVES FOR CORROSIVE FLUIDS AND GASES.

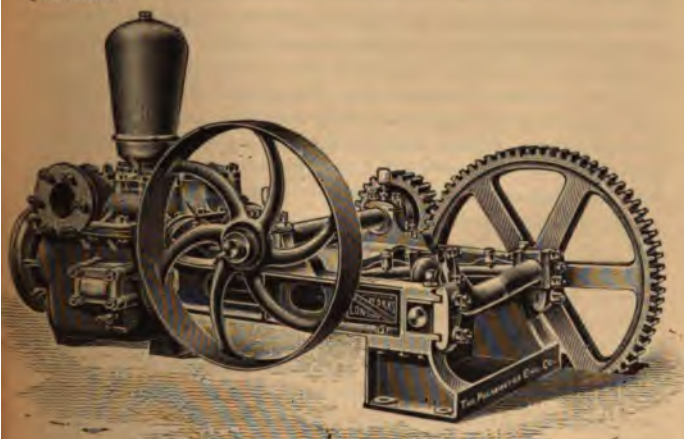
SINCE the advent of screw-down valves for use with chemical liquids, gases, &c., their superiority over ordinary plug cocks and other such primitive means has been amply demonstrated and much appreciated. But notwithstanding the many advantages attained by using the former, there have always been hindrances to their more universal adoption, prominent among which may be mentioned their bulkiness, great weight, and the slowness of the opening or closing operation. Thus there was still room for improvement.

To overcome the aforementioned drawbacks a new form of valve was introduced in the early months of 1896, and is now giving great satisfaction to its various users. It is made in all the required shapes or forms, and can be adapted to any position. The operating valve is usually a plug or disc, all parts coming into contact with liquor, &c., being of acid-resisting metal only. The weight and outward dimensions are similar to those of ordinary plug-taps, though in some cases they are even smaller and lighter. The movement is very quick, the valve being fully opened by a half turn of the hand wheel, thus giving a full bore flow. The spindle is non-rotative, and works through a special packing gland. When full open the liquor is effectually shut off from the packing in this gland. The prices are low, being only about half those formerly charged. The inventor and patentee is Mr. Charles H. C. Rudd, of the firm of Charles H. C. Rudd and Partners, Thistle Chemical Plant and Engineering Works, Newcastle-on-Tyne.

A DUPLEX POWER-DRIVEN PUMP.

THERE is no end to the variety of pumps, but on the other hand it would seem that there are as many purposes to which special pumps are peculiarly suited.

It is not surprising, therefore, that even in the chemical and allied trades alone there should be many occasions for referring to some particular type of pump that has a claim on the attention of manufacturers.



Anything fresh concerning pumps is therefore naturally noteworthy, and in this particular instance we give an illustration of a very neat form of Duplex Power Pump as built by the Pulsometer Engineering Company, Ltd., of Nine Elms Iron Works, London, S.W.

The pumps in question are 6" in diameter 10" stroke. Pumps of this type are very suitable for continuous pumping, for boiler feeding, raising the water supply of paper works, and general use in chemical works as they require very little attention.

The valves and seats can be made in various designs according to the work in view. It will be observed that the pumps are self-contained so that little fixing is required.

A set of pumps as shown, but fixed on a small carriage are very convenient for use for general pumping in conjunction with a portable engine.



The task which we have to face each year of presenting to our readers a series of brief biographical sketches of the prominent men of industry and science, is this time of a somewhat different nature than usual. In the first place it is pleasing to note that the losses in the ranks of pure science have been lighter than before. Secondly, there have been even fewer of the leading lights of industry extinguished. On the other hand, the year has been a heavy one as regards those who, able though they be, must be classed with all due respect as of comparatively minor importance. We say comparatively, and would emphasise the word, for who shall say that it is not the humbler workers, in their numbers, who do, collectively, as good work—though unobtrusively—as the greatest of the great? They have the one advantage that in all probability if their loss is not so universally deplored, it is more keenly felt and appreciated by their familiars. This being so, we shall this year adopt a strictly alphabetical arrangement in the notices which follow.

WILLIAM DANIEL ALLEN.

Ætat 71.

William Allen was a milestone in metallurgical progress, as he marked with a few others the epoch at which the Bessemer steel process was introduced. He was the son of a Buckinghamshire farmer, and was born at Chalfont. He was educated at a London college, and at fifteen years of age became apprentice to Mr. Bessemer (as he then was) who married his sister. Being a bright, sharp lad, he became exceedingly useful to Mr. Bessemer, who was at this time experimenting at Baxter House, St. Pancras, and laying the foundation of his subsequent triumphs in metallurgical research. Young Allen followed practical engineering for some time, and in 1854 went to America to superintend the erection of some machinery invented by Mr. Bessemer for crushing the sugar cane and refining sugar. In 1858 Mr. Allen came to Sheffield and took up the management of the first Bessemer works, devoting himself with rare assiduity and untiring effort to improve the quality and manufacture of steel. The first two years were chiefly spent in further experiments, but so successful were the results that at the end of another dozen years it was ascertained, dealing with all the Bessemer works then in existence, that 81 times the capital embarked in the process had been taken out, in other words there was a hundred per cent. for every two months for twelve years. The original partners were Sir Henry Bessemer, Mr. Allen, Messrs. Longsdon, and Messrs. Galloways, of Manchester. The partnership expired in 1877, when Mr. Allen took over the whole business, and converted it into a private limited company consisting of himself and family. This arrangement continued until 1889, when shares were placed upon the market, and the public became interested in one of the most prosperous and best dividend-paying concerns in the country. Mr. Allen remained chairman of the company throughout the whole time, and always at the annual meetings faced a substantial and contented body of shareholders. Besides his association with Sir Henry Bessemer he was an inventor on his own account. Amongst his patents may be mentioned the Allen agitator for the more perfect mixing of steel, which is still largely in use. He also patented valuable inventions for furnaces used in heating, and hydraulic machinery for manipulating steel. In May, 1890, he was awarded the Bessemer medal of the Iron and Steel Institute. He took no part in public affairs, but was an ardent and all-round sportsman, and chairman of the Sheffield Theatre Royal Committee.

RICHARD BEALEY.

Ætat 85.

Richard Bealey was born at Radcliffe, near Manchester, being the eldest son and second child of Adam Bealey, of Radcliffe Close, where the family had carried on the business of bleachers since 1673. Richard Bealey was best known in connection with the chemical works which were founded in 1791, as an offshoot of the bleaching business. His father died when he was but ten years of age. He was educated by Dr. Cluney, of Pendleton, but left school at an early age to assist his mother who, in partnership with him and his brothers, carried on the business as Mary Bealey and Sons. Subsequently the business reverted to himself. Two brothers emigrated to Christ Church, New Zealand, and founded a sheep farming business, which is carried on by their descendants. His brother Adam entered the medical profession, and their collaboration on the preparation of bleaching liquor has been referred to in the *Journal* (460, p. 180). He was the first chairman of the Radcliffe Local Board, and took a close and practical interest in the Wesleyan Chapel and Schools, the former of which was built by his mother in 1839. He also supported the building of the Parish Church Schools. He married a daughter of H. Longsdon, of Sheffield, referred to above in the notice of W. D. Allen.

RUDOLPH BENEDIKT.

Ætat 43.

Rudolph Benedikt was born at Vienna on the 5th of July, 1852. After the usual course of study at the Polytechnic of his native city he migrated to Berlin to study chemistry under Beyer and Rose, working in the laboratory of the former. His stay at Berlin was but a short one, as in the same year we find him transferred to Heidelberg, and attending the lectures of Bunsen and Stürnhoff. The year 1872 saw him returning to Vienna, where he adopted the teaching of chemistry as a profession, and rose steadily in his calling till he was appointed Professor of Analytical Chemistry in the same Hochschule in which he had passed the days of his studentship. A new laboratory was built for him, and he was entrusted with the task of its equipment, but within two years of the completion of these labours the world was notified of his premature decease at the early age of 43. Benedikt's name was principally associated with the chemistry of oils, fats, and waxes, and he may be said to have done, for this particular branch of chemistry what Liebig did for agricultural chemistry. His short life was particularly fruitful in result. Before his time the testing of oils and fats was conducted on lines of the greatest crudity, and his life-long work may be said to have consisted in codifying and classifying the tests already known, and, with the aid of carefully worked out additions, weaving the whole into a comprehensive system comparatively free from vagaries and inconsistencies. His contributions to chemical literature were very numerous, but the work by which he is principally known, and in connection with which his name will be handed down to posterity is his book on "Die Analyse der Fette und Wachstern," which has been translated into English, with revision and additions, by Dr. J. Lewkowitsch.

HENRY BOWER.

Ætat 63.

Though in a sense by no means a man of years, Henry Bower was one of the fathers of the American Chemical Industry. He was for ever conspicuously prominent, enthusiastic, and untiring in all matters connected with the welfare of the industry he was interested in. In his later years he laboured greatly for the erection of a new building for the Franklin Institute, in the progress and development of which he took the keenest interest.

Born in Philadelphia in 1833, he graduated at the College of Pharmacy in his native town in 1854. He practically commenced his business career as a chemical broker. Within two years of leaving the College of Pharmacy, however, he joined the ranks of the manufacturers, and to good purpose. He began as a chemical manufacturer at 29th Street and Gray's Ferry-road, where the works he established are still situated.

Throughout his active business career he was always identified with

every movement affecting the growth of the chemical industry in the United States. He was the first in America to use potash salt ingredient of the fertilizers which he manufactured; also, among the first—if not the first—to recover, on a large scale, ammonia from the "gas liquors" of the gas works.

He received from the Franklin Institute, in 1878, the Elliott Medal, as the first of American manufacturers who made pure and odourous glycerine. He received, also, medals for the excellence of his manufactures, at the exhibitions of Vienna, 1873; Philadelphia, 1876; Paris, 1878; and Chicago, 1893.

It was chiefly owing to his representations that the U. S. Bureau determined, in the Census of 1880, to have the statistical chemical industry reported as a separate branch of manufactures. Mr. Bower was appointed the special agent of the Bureau to collect these statistics for the Census of 1880 and 1890, and the excellence of these reports bears eloquent testimony to the painstaking and thoroughness with which he devoted himself to the work entrusted to him. His intimate acquaintance with the chemical industry of the United States was widely recognised, and the fact that his opinions and views were frequently sought by the committees of the Senate and House of Representatives in the framing of tariff legislation bearing on the chemical industry affords capital evidence of the extent and accuracy of his knowledge of the subject and of the soundness of his judgment. He was present in the councils of the Manufacturing Chemists' Association of the United States, and served this body for many years as secretary and treasurer.

Mr. Bower was elected a member of the Franklin Institute in 1881, and was chosen a member of the Board of Managers in 1891, and continued in this position until his death.

SIR WILLIAM ROBERT GROVE.

Ætat 85.

The chief interest to our readers in the personality of Sir William Grove is due to his scientific and not his legal work. He was the inventor of the familiar Grove Voltaic Cell. He was born at St. Andrew, Scotland, and owed his early teaching not to any of the great public schools, but to the Rev. E. Griffiths, of Swansea, and subsequently to the Rev. J. Kilvert, of Bath. At an early age he proceeded to Brazenose College, Oxford, where he took an ordinary degree in 1830. The old-fashioned studies of the University presented few attractions to Grove. He had been 40 years younger and an undergraduate in the days when it was humorously estimated that every man who took honours in the Natural Science Schools cost the University £1,000., the whole of which was not a mere fragment of the future Judge's intellectual powers, but had been devoted to physical studies—in which case it may be conjectured that science would have gained more than law would have lost. In 1835 Mr. Grove was called to the Bar at Lincoln's Inn, but was prevented by ill-health for several years from actively pursuing the legal profession. It is said that Law as well as Science is a jealous mistress, but unquestionably Grove achieved high distinction in both, though he gave himself up exclusively to neither. During this period he absorbed in electrical researches, and succeeded in 1839 in constructing the Voltaic battery which bears his name. In the following year he was appointed Professor of Experimental Philosophy at the Institution, a chair which he filled for seven years. It was during his tenure of this office that he laid the foundation of the European reputation in the world of physical investigation which he subsequently acquired. In 1842 he delivered a series of lectures on the progress of physical science since the foundation of the London Institution, in which he first advanced the doctrine of the mutual convertibility of various natural forces—heat, electricity, etc.,—which was afterwards more fully developed in the epoch-making essay on the Correlation of Physical Forces, which was published in 1846. This treatise, which has reached several editions, and has been translated into almost all the languages of Europe, at once placed Grove in the first rank of scientific thinkers. In the meantime he had been elected a Fellow of the Royal Society, in the proceedings of which he took an active part, especially in the discussions on the reform of the society, which effected after a severe struggle in 1847. In that year he obtained the Royal Society medal for his Bakerian lecture on Voltaic ignition.

decomposition of water into its constituent gases by heat. He contributed many papers to the proceedings of the Royal Society the *Philosophical Magazine*. The active pursuit of his profession abated the interest which he took in the progress of science, one cannot but fear that his achievements in physical research thereby made less extensive than would otherwise have been the case. He was appointed a member of the Metropolitan Commissioners and of the Royal Commissions on the Patent Laws, and at the same time enjoyed a considerable practice in patent cases. In 1866 he was elected President of the British Association at Nottingham, the subject of his address, afterwards published in a separate form, being the "Constitution of Natural Phenomena."

In 1871 he was created a Judge of the Common Pleas. It was not that the new Judge would be especially valuable in the trial of cases; but it can hardly be said that the result answered the expectation. It was, in fact, rather a case of too much knowledge being a dangerous thing, and the Judge was apt to allow himself to be over-erected in the scientific aspects of the patent. Instead of limiting the bare legal question of infringement or no infringement, he was occasionally tempted to suggest improvements, and ask why they had not been done or the other left undone, and thereby to devote his time rather to the furtherance of practical science than to the administration of the law. But it cannot be denied that he did excel as a Judge, was fully able to hold his own among his colleagues, and showed the courage of his opinions in occasionally differing from other members of the Court. Sir William Grove retired from the Bench in 1887, after 16 years' service. His scientific labours had won him official recognition in foreign countries, and he was a member of the Academies of Rome and Turin. His University, in 1874, conferred upon him the distinction of an honorary degree, but one is somewhat surprised not to find his name in the list of honorary Fellows of the Royal Society, of which, with the exception of Dean Milman, he was the most eminent member during the present century.

After his retirement from the Bench he was a familiar figure at the Royal Institution, where he delivered a lecture on February 20, 1888, on "The Conflict of the Various Forces by which the Universe is Maintained." In March, 1891, he made a remarkable speech at the Chemical Society's jubilee, at which he stated that he was one of the original members of the society, and that at the lecture given by John Dalton at the Royal Institution that occasion he found fault with himself for not having used the spectroscope. "I had observed," he said, "that there were different lines exhibited in the spectra of different metals ignited with an electric arc, and if I had had any reasonable amount of wit I should have seen the converse—viz., that by ignition different bodies would give different spectral lines the materials of which they are composed."

JOSEPH HARDMAN.

Ætat 60.

Joseph Hardman was of a humble origin, and commenced his career at the early age of six, in a calico printing works in the neighbourhood of Manchester, where he remained until the age of 16, when he entered into the chemical trade at the works of John Bethell and Co., Bradford, Manchester. Here he soon showed signs of development in his abilities, and, when 23, was offered a position in a similar business at Mr. Astle's, Milton, near Stoke-on-Trent. Here again he showed signs of capacity and resource. There was good business doing in the paraffin trade, he left Milton and went to Wales to do paraffin works. He only stayed there a short time and soon returned to Milton. Shortly after he founded and became partner of the firm of Hardman and Holden, Ltd., one of the foremost in the business of chemical manufacturers and tar distilling. He carried on his business to Miles Platting, Manchester, occupying the premises which formerly belonged to Messrs. John Bouch and Co. In time he made rapid strides, rebuilding and modernising the works.

The benzene, which was only manufactured on the Continent, was introduced by him on an elaborate scale. He also was one of the first to use the process of coal carbonizing for the recovery of benzol,

and several large works were erected under his supervision and management. He was also the architect of his own fortune. He was untiring and always to the front, for both in the lexicon of his youth, and onwards up to the time of his death, there was no such word as failure. He was held in high esteem by all who knew him, both in commercial and private life, and always ready to assist when called upon for any charitable purpose in his own neighbourhood. During the latter part of his life he built an institute for the benefit of the inhabitants of Milton, supplying the same with papers, a library, and all requisites, and maintaining it for the first 12 months of its existence.

ALFRED NOBEL.

Ætat 64.

Alfred Nobel, engineer, chemist and inventor, was the brother of Robert Nobel, of petroleum fame, and so was also of Swedish origin. He achieved fame by the invention of dynamite. Prior to the invention of dynamite several serious and fatal accidents had occurred with nitro-glycerine, both in transport and handling. Impressed with its value and importance as a blasting agent, and with its highly dangerous character as an article of commerce, Mr. Nobel set to work to discover a means of rendering it safe except under the actual conditions of doing work. As the result of experiments, suggested by an accidental discovery, he decided to use sand as a carrier for the oily nitro-glycerine, giving to the compound the expressive name of dynamite. The first demonstration of the power and comparative safety of dynamite in this form was given by Nobel personally at the stone quarries at Merstham, Surrey, on July 14, 1868. Certain disadvantages in the use of sand as a carrier, however, developed in practice, and this led to further investigations, which resulted in Nobel substituting Kieselguhr, or infusorial earth. By this means he succeeded in converting one of the most dangerous explosive compounds into a tractable blasting agent, practically inaugurating the era of high explosives of this class. He subsequently introduced several useful improvements in the form of gelignite and ballistite. A number of years ago Mr. Nobel moved his experimental laboratory from Paris to San Remo, but retained his domicile in the Rue Malakof of the French capital. The company formed by him and designated Nobel's Explosives Company, Limited, has its headquarters in Glasgow, and factories, of which the one at Ardeer is the chief, in various parts of the world.

ROBERT NOBEL.

Ætat 67.

Robert Nobel, a Swedish manufacturer, justly achieved renown as the founder of the Russian petroleum industry in the Caucasus. As is often the case his attention was first drawn to the possibilities of the future by a casual visit to Baku in 1873, where his further investigations led to his great discovery. At that moment the petroleum farm had just been suppressed, and Robert Nobel set himself to explore the Apscheron Peninsula and the Isle of Tchelakene, and, having discovered rich deposits of petroleum, he proved the success with which it could be extracted from a great depth. The abundant supply showed him that Russian petroleum could compete with American, and, taking into partnership his brothers Alfred and Louis, he founded in 1875 the great firm and manufactory which was the first step towards establishing the present prosperity of the Caucasus.

JOHN T. NORTH.

Ætat 52.

As an example of what a man with little, if any prospects may rise to, the career of J. T. North, better known as Colonel North, of nitrate fame, is an interesting example.

Born at Holbeck, near Leeds, he entered the large engineering works of Messrs. Fowler, Limited, merely a stolid, sturdy Yorkshire lad, quick, shrewd, and honest, with no booklearning or chance advantages of fortune or patronage, but possessing an indomitable courage and energy. The story of his climb to success is best told in his own words, as the history of a Leeds "loiner," as he used to relate it to a few cronies. It was just after his return to England from Peru, and interrogations as to how he got on elicited the following:—

"I have made my first bit o' brass in the most curious way. You know Jim Kitson's works over yonder"—this referred to Sir James Kitson, who was not knighted at that time. "Well, lad, I went there as a boy. You know that the Kitsons are one of the biggest machinery and locomotive makers in the world. I had to do all sorts of odd jobs, generally greasy and smelly. I used to oil the joints of the engines, and many's the kick I've had when I've been slow in my work. At last I got work in the fitters' shop—a big rise I can tell you. My wages simply leaped up from twelve shillings to eighteen shillings a week. It almost took me off my head for the time. You see I was in love with a girl who was working at a neighbouring factory in Hunslet, Leeds. We'd had many a talk about getting married, but when I was only getting twelve shillings a week, and she was only getting eight, we came to the conclusion that it would'n't do. So I said, 'My lass, ahm reyt fond of tha, and the moment I get a rise in screw we'll risk it, and we'll face the world, lass, for good or for ill.' She gave me a hug and kissed me, and from that day to this she's been my best adviser, friend, and comforter.

"In the ordinary course of things," continued the Colonel, "I should have worked all my life in a Leeds engineering shop, and should never have got higher than about 50s, or, at most, 60s. a week in my life. But luck, chance, fate, good fortune—whatever you may please to call it—was on my side. Yes, my good friend, on my side from the very day of my marriage. I am not superstitious as a rule, but I do say most emphatically that on the very day we married, on the joint salary of twenty-six shillings a week, the luck changed in our favour. And, mind you, she really is the best, the most devoted wife that any struggling working man—well, I will spare you further heroics.

"The luck came to me in this way. My firm had a contract to lay a line of railway in Peru. They considered that as one of the best young workmen engaged in the engine sheds, I might go out there and possibly 'better myself.' I seized the chance at once. I simply pushed myself forward for the job. I offered to go for the ordinary salary I was getting, namely, eighteen shillings a week. I implored the firm to send me out, and, penniless as I was, even offered to pay my own travelling expenses out, begging the 'guv'nors' to take it out of my wages. They laughed and said, 'North, we like enthusiasm, and you shall go.' Well, the projected railway didn't come to much. It was a frost, but we all got our wages, and, in the meantime, I was looking around for myself. We laid our line through the wilds of Peru, and had adventures of all sorts. But one day I wandered down to a creek leading to the big river, and there I saw a rusty old steamer which had apparently been laid up as useless. I suddenly conceived the idea of getting this little steamer, with the rusty paddles, thinking that I might trade up and down the river with it, touching with grain and various provisions at the various towns and villages. I got possession of the steamer for a few hundred dollars—I really forget how many, but I know that when I found myself in possession of this vessel I was entirely cleaned out.

"I had neither money nor credit. But I managed to get a cargo of goods somehow, and I plied my tiny vessel with satisfactory results. And then, one day, when Chili and Peru were at war—they always were, you know, and were never happy unless a new revolution broke out at least every twenty-four hours—well, Chili and Peru were at war, and my little vessel happened to come down to the mouth of the river at a critical moment. There was a Peruvian warship on guard, and they signalled to me on my little boat that they were starving, and were in the most desperate straits for food and water. I was able to relieve their immediate necessities, and when the war was over I claimed some small compensation for the services which my vessel had rendered. As a return there came to me a concession to work a hitherto unexplored field of 'nitrates.' This one concession led to many others, and a happy accident simply laid the foundation of my fortune."

With this concession he started to acquire all the nitrate grounds he could. During the war shares in the nitrate fields went down to the price of waste paper. Many of the bonds were held by Peruvians who, fearing that the Chilians would confiscate the fields, were anxious to get rid of their shares at any price. North, with the little money he had saved, bought every share he could lay his hands on.

Many were the *officinas* he acquired by purchase in this way, and when the conquering Chilians came to seize upon the lands, they found the British flag flying over many square miles of nitrate beds of which the owner was J. T. North. Some men would have rested there, but not the Yorkshireman. He improved his properties, he added to them, and, as he possessed a talent for finance as well as for management, he at last built up nitrate companies to work the Peruvian fields. Then, suddenly, he came over to England, and burst upon his old friends and upon the city of London as a millionaire. First among these companies came the Colorado, Primitiva, and Liverpool Nitrate Companies, which paid what seemed enormous dividends for such newly established concerns, and the first and last of which are still two of the soundest companies. The public, not understanding the peculiar characteristics of nitrate properties, were dazzled with their display. A great speculation arose in nitrate undertakings, and when the Primitiva Company was able to declare a dividend of 60 per cent. within three years of its formation this speculation went almost beyond bounds. The £5-shares of that company rose to 38½, and a crowd of other nitrate-producing companies were created, foremost amongst which were those in which Colonel North—he was a Volunteer colonel—was the promoter or took a share in the promotion. For a time high premiums were quoted for these issues, but the stern logic of facts has since robbed most of the shares of this adornment. This has been particularly so with the Primitiva, which went on the rocks.

As a business man Colonel North's most remarkable achievement was his introduction of the Nitrate Railways Company and his various nitrate of soda producing companies on the London market. Eight or nine years ago he was regarded by many speculators and Stock Exchange "punters" with something approaching the awe and reverence which was inspired by George Hudson, the "Railway King," in the "forties." It was at that time believed, and was to a considerable extent true, that "the Colonel" could make the fortune of anyone he chose. A good many people, no doubt, made money through his advice, but a good many must also have lost it indirectly through the same means, for the creation and "flotation" of nitrate companies begun by Colonel North was very much overdone, and the profits of nitrate companies are now much smaller than in the palmy days of 1888-89. The undertaking, however, by which Colonel North made his fortune, the Nitrate Railways Company, has always been a more or less profitable concern. His later incursions into the field of finance were hardly so successful as his earlier operations. The extraordinary mistakes he fell into in regard to the Londonderry Gold Mine are of too recent occurrence to need mention. In 1889 he presented to Leeds Kirkstall Abbey and its grounds, which he had purchased for £10,000, and he was a warm supporter of the numerous institutions both of the town and of the county. In recognition of his generosity he was, in 1889, made an honorary freeman of the borough. A good characteristic of the late Mr. North was that he manfully stood by his companies in times of their adversity, and however much he may have over-capitalised them at the start, he did his best to help them in their trouble, even if he was not always successful.

SIR JOHN PENDER.

Ætæ 80.

Apart from his connection with the laying of the Atlantic cable Sir J. Pender has a claim to consideration on account of his career as a Manchester merchant, and the director of one of the leading Scotch oil companies. His life practically divides itself into two distinct parts:—(1) As a merchant in Glasgow and Manchester, and (2) as introducer, executant, and extender of submarine and sub-oceanic telegraphy. In Manchester Sir John rose to the front rank in the export trade of that vast emporium of manufacture, and there laid the foundation of his still more conspicuous course in telegraphy, not only as regards ample personal means for a work that was to task the richest men, but also a thorough knowledge of India, China, America and the colonies, combined with lofty faith in the possibilities of British enterprise. When the immense Atlantic project was undertaken he was one of the 345 who contributed £1,000 each to let the experiment be tried. His name appears from that time in the list of directors of the Atlantic Company over seven or eight years, during which cable after cable had

failed. The final crisis of Atlantic prospects came when the ship "Great Eastern" steamed out, with capacity far greater than any other ship before or since, and a cable more nearly perfect than had before been made; yet the great ship parted with this precious cargo in mid-ocean, and the Atlantic Company was financially ruined. Its appeals to the public for subscription of capital had hitherto fallen flat; they were now utterly useless. But not so thought Sir John Pender, and others like him, as to the attainable undertaking, and the Anglo-American Company (of £600,000) was then formed to lay a new cable and to recover the former if possible. Negotiations with Glass, Elliott, and Co. and the Guttapercha Company, therefore, had been under arrangement. But difficulties arose between the two manufacturing companies. The Guttapercha Company found it was surrendering its accustomed business in favour of a supreme object, and that in the failure of that one purpose might lose all. It was here that the genius of Sir John Pender rose to heroism. Delay would have been fatal to an Atlantic cable, and to all the capital, approaching £2,000,000, that had been expended. The Guttapercha Company were asked by Sir John what amount of guarantee they required. A quarter of a million sterling was the answer. "Will you take my personal guarantee for that amount?" "Yes." "Well, you have it." And in a few weeks more, Glass, Elliott, and Co. and the Guttapercha Company were formed into the Cable Construction and Maintenance Company, with Sir John as chairman. The cable was not only successful—luckily for Sir John and the world—but the same expedition that laid it recovered the one that had been lost; and the two companies Atlantic and Anglo-American, were brought back successfully to life and land."

In addition to taking an active part in the welfare of eleven telegraphic companies in the capacity of chairman, he acted as such for the Central Chili Copper Company, the Isle of Man Railway Company, and the Metropolitan Electric Supply Company. He was also a director of Young's Paraffin Light and Mineral Oil Company.

JAMES PORRITT.

Ætat 85.

A well-known Lancashire face passed from sight by the decease of Mr. James Porritt, of Ramsbottom. Though really a woollen manufacturer he is better known for his connection with the paper trade as a maker of felts.

To start with, in 1829, he was a small manufacturer in Bury. When only eighteen his father died. He overcame what some people would consider to be great difficulties, and success marked his career almost from the commencement. In 1838 the business was removed to Dearden Clough Mills, Edenfield, and in 1850 the family removed to Stubbins, near Ramsbottom, and the present works were erected by Porritt Brothers and Austin, by which style the firm is still known. These works were built under the direct supervision of the deceased gentleman, and twenty years after their completion Mr. Austin died. From that period the concern has been conducted by Mr. Richard Millett Porritt, residing at Green Mount, Stubbins Vale, and Mr. John Austin Porritt, of The Cliff, Stubbins Vale.

He was the inventor of several very useful patents, including a piecing machine for piecing cardings, and also a condenser machine for forming a continuous thread. For these he took out letters patent, but never pushed the inventions.

AUGUST KEKULÉ.

Ætat 67.

Like Liebig, Professor Kekulé was born at Darmstadt. He was intended for an architect, and entered the Giessen University to study for this calling. Under the inspiring influence of Liebig, however, he was seized with an intense enthusiasm for Chemistry, and without further tuition in architecture, he proved the able architect of his future, full of fame and honour. After studying under Dumas and Williamson in Paris and London, he became *privat docent* at Heidelberg. In 1858 he was appointed Professor of Chemistry at the University of Ghent, finally settling seven years later at Bonn, where he was Professor at the time of his death.

Kekulé's first published work appeared in Liebig's *Annalen* for 1850. Four years later he published his second paper, in which he

described thiocetic acid and discussed the action of phosphorus pentasulphide on oxygen acids.

The period from 1854 to 1874 was one of the greatest activity with Kekulé. Since 1874 he has made comparatively few contributions to chemistry, although occasional papers have appeared. In spite of the great number of investigations he has made, chemistry, and organic chemistry in particular, is most indebted to Kekulé for his great generalisations and theoretical suggestions.

He extended Gerhardt's type theory by adding the marsh gas type and introducing the idea of mixed types. These types made clear to him the difference in the power of the elements to hold other atoms in combination, and he developed the idea of valency, first put forward by Frankland, so that this new property of the elements was at once recognised by chemists, the conception of atom-linking followed it, and this made possible the transition from the type theory to our present conceptions in regard to the structure of compounds.

Besides his work as a lecturer and investigator, he began in 1860 and finished in 1861 the first volume of his *Lehrbuch der Organischen Chemie*, a book that was epoch-making with its new ideas and new methods of presenting this complex subject. The book was received with enthusiasm among chemists, and has served as a model for subsequent works in the same field. Three volumes of this book were finally published, but the work was never completed. He was also for many years one of the editors of Liebig's *Annalen*. During his last years he suffered much from ill-health, having followed too literally Liebig's advice: "If you would become a chemist, you must ruin your health. He who does not ruin his health by hard study in these days comes to naught in chemistry."

EMIL DU BOIS-REYMOND.

Ætat 78.

The death of E. Du Bois-Reymond, which took place late in December, deprived the University of Berlin of a professor celebrated in the sphere of physiology and organic chemistry.

Of French-Swiss origin he studied first at the French Gymnasium and afterwards at the Berlin University. Under the tuition and influence of Johannes Müller he devoted himself to an investigation of the phenomena of animal magnetism, and utilised the results of his researches to discomfit the vitalist school of physiologists who affirmed the existence of a general magnetic vital fluid. With Helmholtz and Mayer, Du Bois-Reymond carried on a vigorous anti-vitalist propaganda, and proved that biological phenomena are governed by physical and chemical laws. But Du Bois-Reymond's fame as a *savant* was eclipsed by his renown as a populariser of the natural sciences. In this respect his influence was comparable to that formerly exercised in England by Huxley and Tyndall.

RICHARD JOHN THOMPSON.

Ætat 57.

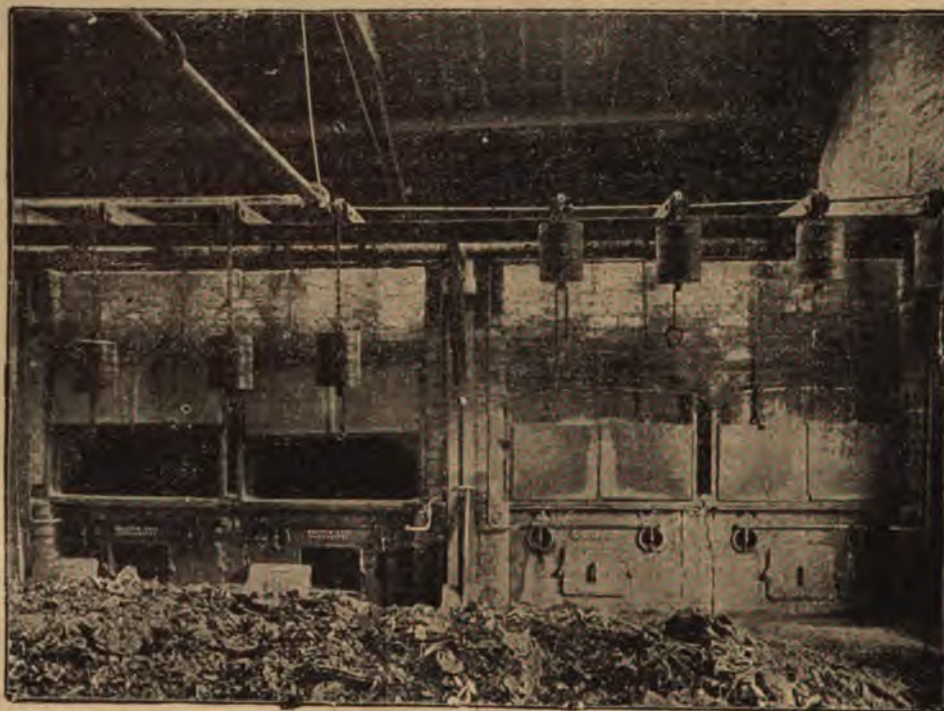
By the death of Richard J. Thompson there passes away a character almost as prominently connected with the American oil industry as was the late Robert Nobel with the Russian naphtha trade. Mr. Thompson, as a member of the familiar firm of Thompson and Bedford, distinguished himself as a pioneer in the mineral lubricating oil business, and for many years was prominently identified with its interests. He was a native of Monroe, Mich., where he was born fifty-seven years ago. He came to New York and entered the oil business about 1870, with the firm of William H. Boyd & Co., their principal trade being in West Virginia lubricating oils. Later the style of the firm was changed to Boyd and Thompson, and subsequently to R. J. Thompson and Co., the junior partners being I. V. Boyd and E. T. Bedford. Afterwards the business was reorganized under the name of Thompson and Bedford, which in turn was incorporated as the Thompson and Bedford Company, Limited, in which the Standard Oil Trust acquired an interest. On the nominal dissolution of the Trust, as enforced by the U.S.A. Trust Law, the business of Thompson and Bedford Company was merged in and became a department of the present Standard Oil Company, at which juncture Mr. Thompson retired permanently from the house. His retirement from business was the cause of much regret.

THE UTILIZATION OF TOWNS' REFUSE.

SPECIALY CONTRIBUTED].

REFUSE is one of the unavoidable attributes of modern civilisation, and as such the chief problem that it presents is merely how to dispose of it. From time to time ardent apostles of economy have dwelt upon the wastefulness of simply getting rid of refuse without trying to make some use of it, and have in turn fired certain individuals with

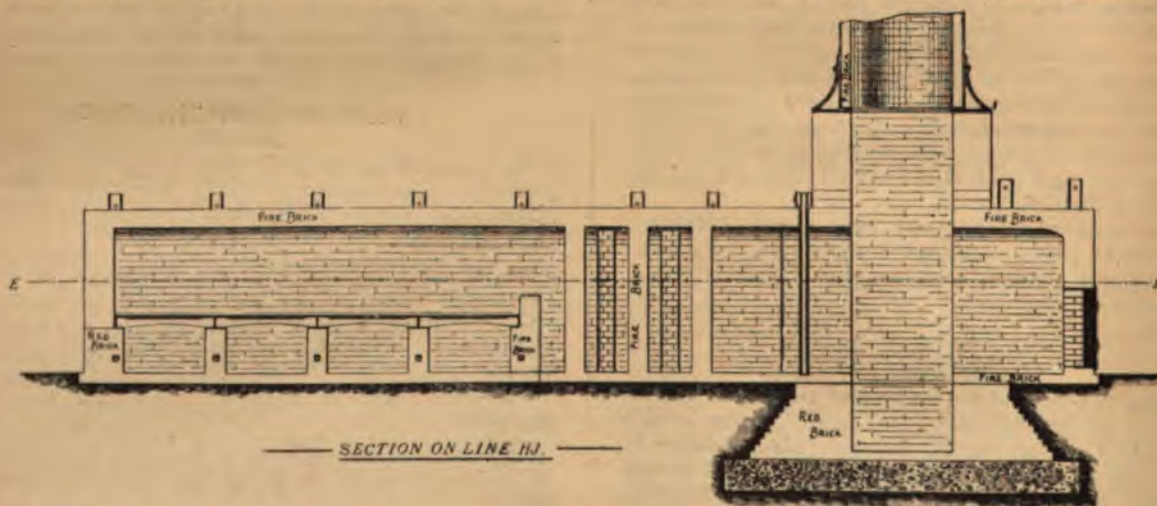
other cases the principles that have triumphed in one instance at all events. Refuse destruction has been to the fore lately, and the personal experience that has been gained at Rochdale, from the investigation of a plant which has been steadily working for about eighteen months, justifies us in drawing the attention of our readers to the following record of achievements. The object is not to give a detailed account of the plant, because in a large measure



the desire to translate such ideas from the heights of theoretical proposition to the lowlands of practicability. In most cases, however, it has been the same with all such endeavours as it has been with the profitable treatment of sewage—many hopes and even more disappointments. In consequence the suggestion of utilizing garbage in its raw form has come to be regarded as an *ignis fatuus*; but the progress of the last year

this information is easily obtainable, but rather to convey the results that have been obtained, the work that can be done and the principles which are distinctive and apparently the essentials of success.

In Fig. 1 a general view of the Rochdale destructors is given, thanks to the courtesy of Mr. Brookman, the superintending engineer. We have been able to watch the working of these furnaces in the various



or so has been so important that we are inclined to pause yet once again and reflect whether, after all, victory has not come, even at the eleventh hour as it were. One swallow we know will not justify the assumption that in a few days we shall have roses in blossom, but in matters of this nature one successful treatment is an ample warranty for trying it in all its bearings, and making fresh endeavours to apply in

stages entailed in the combustion of the refuse and the generation of steam therefrom. Behind them are two Lancashire boilers which are heated by the gases and furnish steam at a pressure of 110 to 120 lb. per square inch. As will be seen, they are fitted with Meldrum's forced draught apparatus, and it is to this firm we are indebted for the drawing of the furnace that we reproduce. The advantage of

system over that of obtaining the requisite draught by a very high and expensive chimney is that the air supply is more easily regulated, and a great in-rush of cold air (which cools the combustion chamber) every time the doors are opened for charging is avoided. At Rochdale the chimney damper is nearly shut, the products of combustion only being kept gently moving forward. Forced draught is more local in its action so that the gases travel slower after leaving the grates and deposit the flue dust all the sooner. It may here be mentioned that this dust, which is removed from the cleaning door shown in Fig. 2, is mixed with carbolic acid, and forms an excellent and handy disinfectant, as which it is used by the Corporation. Since by this system the pressures are nearly balanced there are none of the usual difficulties of maintaining regular working, which are generally experienced with hand firing. This is a particular advantage, as although a hopper feed is customary, experience favours hand firing in many points which are decidedly practical in spite of the theoretical objections of labour and expense. Clinkering is also rendered a not unreasonably arduous task. The tabular statement of results in Table I. express as concisely as possible the actual working results that can be and are being obtained in these furnaces with *unscreened refuse*.

TABLE I.

TESTS MADE ON MELDRUM DESTRUCTOR.

Tests made as far as possible with one boiler and two furnaces. Material burned, *unscreened ashpit refuse only*, on a Lancashire boiler, 30 ft. by 8 ft. Approximate grate area, 90 square feet.

Date of test, 1895	Nov. 14th.	Nov. 15th.
Duration of test	6½ hours.	6½ hours.
Temperature of feed water	52°F.	52°F.
Water evaporated in one boiler	3,900 gals.	4,320 gals.
Water evaporated in stand-by boiler	390 "	420 "
Water evaporated in one boiler per hour	600 "	664.6 "
Water evaporated in stand-by boiler per hour	60 "	64.6 "
Total water evaporated	4,290 "	4,740 "
Total water evaporated per hour	660 "	729.2 "
Average steam pressure	113.2 lbs.	114.3 lbs.
Total refuse weighed	14 t. 2 c.	14 t. 13¾ c.
Total bricks, stones, etc., not burned	7 cwts.	6¾ cwts.
Total refuse burned	13 t. 15 c.	14 t. 7 c.
Total refuse burned per hour	4,738 lbs.	4,945 lbs.
Total refuse burned per hr. per sq. ft. of grate	52.6 "	54.9 "
Water evaporated per lb. of refuse burned	1.39 "	1.49 "
Water evaporated per lb. of refuse from } and at 212°F.	1.68 "	1.78 "

* This being heat from the furnaces leaking past the dampers of this boiler, the water evaporated is added, as above.

TABLE II.

Evaporative test made on a Lancashire boiler, 28 ft. by 7 ft., flues ft. 9 in. diameter, fitted with Meldrum furnaces, at the Salford Sewage Works, Mode Wheel. Fuel used, *unscreened ashpit refuse*.

Date of test	Feb. 19 & 20, 1895.
Duration of test	14 hrs. 10 min.
Weight of unscreened ashpit refuse burned	18,704 lbs.
Average steam pressure	50.5 "
Average temperature of feed water	42.9°F.
Water evaporated during test	36,000 lbs.
Refuse burned per hour	1,320 "
Water evaporated per hour	2,540 "
Water evaporated in lbs. per lb. of refuse: actual } conditions	1.9 "
Water evaporated per lb. of refuse from and } at 212°F.	2.38 "

It is apparent, therefore, that one great advantage of the forced draught system is the absolute control of the fire, so that very little surplus air is necessary to ensure complete combustion; the blast and dampers can be so regulated that no indraught of cold air takes place even when the doors are open for stoking, and it has been found possible to take samples of the products of combustion containing as much as 18 per cent. of carbon dioxide. It should, however, be added that when these tests were taken rapid combustion was taking place within the furnaces, and all the doors were

eight inches open. Considering the conditions these remarkable results are believed to be without parallel in destructor work, and clearly show what good appliances and a little careful attention on the stokers' part can do.

As the percentage of carbon dioxide is certainly commendably high the following confirmatory figures are desirable. The figures represent the highest and lowest results obtained from a number of samples taken from below the fire bridge and over a period of three months working. An average has purposely been avoided, as much depends on the extremes from which it is derived. One abnormally high test and a number of low ones will afford a respectable average, but there is no getting behind a statement of the highest and lowest figures obtained over such a long period of working. *Highest*: CO₂=18.19%, free O=0.96%, CO=nil. *Lowest*: CO₂=13.08%, free O=5.29%, CO=nil.

Turning to Fig. 2, the chief feature to be noticed is that the ashpits only are divided, the division walls being stopped at about the grate level. Thus one large chamber is formed, the high temperature of which at once destroys the evil smelling products distilled from the "green" fuel when first charged. The following particulars are all that is necessary to explain the rest of the drawing.

The four grates are placed side by side and the ashpits only divided, each being separately fed with a supply of air under pressure. The destructor is practically a single cell, fed and cleaned in four places at regular intervals, thus ensuring an approximately constant temperature of the whole. The fire gases pass side ways in one direction over one common firebridge. After the bridge are placed five rows of baffle pillars arranged to divide and break up the current of hot gases, thoroughly mixing them and ensuring the perfect combustion and destruction of all offensive fumes of vapors. These baffle pillars remain constantly at a bright red or white heat, and take the place of the *cremator* furnace commonly used in other systems. The capacity of the destructor as shown is from 30 cwt. to 35 cwt. per hour, or say 40 tons per day of 24 hours. Suitable doors are provided for cleaning out all dust from the whole of the ashpits, flues, and chimney, so that the apparatus can run continuously without danger of any part being choked with flue dust.

There is also a battery of boilers now working at Rochdale with screened refuse, on the forced draught system, while Table II. shows what has been done with unscreened refuse. On this same principle steam is being raised, and power derived for driving electric lighting plants. In another case a population of 8,000 is disposing of its refuse in accordance with the demands of sanitation, and simultaneously pumping over 30,000 gallons of sewage or water per hour, 100 feet high, for nothing. Lastly, be it noted, that in this scheme the services of that decrepit old hypocrite, the "cremator," are eliminated.

ABOUT OIL MOTOR CARS.*

A VISIT TO MESSRS. COULTHARD'S WORKS.
WHAT REALLY IS—AND WHAT MAY BE.

[SPECIALLY CONTRIBUTED].

THE question of oil motors and their probable relation to the oil and engineering industries is one that was brought before our readers some time back, and as we were then moved to advise those whom we expected would be affected by this new method of transport to bestir themselves, it has occurred to us that it would not be out of place if we did something to help those who are desirous of acquiring information, to do so.

With this object in view we began to look about us and consider in what way we could best compass our end, and the following

FEW WORDS OF INTRODUCTION

will explain the reasons that influenced us in adopting the course we have pursued.

Of general information about what these cars are *going* to do there has been a veritable surfeit. The supply of information concerning their ancient history has been about as generous. All this is without doubt interesting, and to a certain extent instructive, but until the recent run to Brighton, organised by the Motor Club, there has been little information accessible as to what they *were* doing. Even then we seem

* ALL RIGHTS RESERVED.

to have heard more about the start, the finish, and the dinner that concluded the whole affair, than about the journey and the behaviour of the cars thereon.

For considerations such as the preceding we concluded that the most practical way of providing information would be to leave the past and future alone as much as possible, and instead, to collect as many particulars as we could about *what is actually being accomplished*, and about motor cars that are actually in course of manufacture for clearly defined purposes. Before entering into details, however, it is desirable that we should deal briefly with the three chief sources of power,

ELECTRICITY, STEAM AND OIL,

and explain our reasons for making the particular selection which the

title of this article implies. *Electricity* is undoubtedly the ideal source of power, and it has many advantages. For the supply of power to 'buses and cabs in cities it is practically available now, and owing to the total absence of smell, noise, condensed steam and smoke, it is far and away first. But for reasons of the best, because they are practical reasons, it does not promise to be much good for general traction or long runs. Electricity is an attribute of civilisation, and it is only of service to cultivated communities in highly civilised centres. Though the electric light is spreading rapidly, generating stations are at present more than scattered, they are severely isolated, and the motor car is not strong enough to successfully bear the burden of making them even tolerably frequent.

Steam.—Of what steam will do it is not wise to speak hastily. The Serpollet boiler has opened up a path which only needs pursuing, to lead to excellent results, and there are not wanting willing nimble feet and skilled heads to explore it. At the same time there are yet many difficulties to be overcome. The weight that must thus be added to motor cars by the boiler, the furnace, the exhaust condenser and their appurtenances, is likely to prove troublesome, because to travel at 12 miles an hour vehicles must be under one and-a-half tons, the regulation speed of cars over this being made as low as eight and even five miles an hour, according to weight. Nevertheless this particular difficulty is not insurmountable by any means. The three most important drawbacks would, at present, seem to be that a steam motor wants coal or other fuel, water, and stoking. If liquid fuel is adopted, one of the chief complaints against oil motors—smell—will be saddled on steam motors as well. Coal and water are plentiful, and easily ob-

tained, but together they are bulky to store. Then firing means frequent attention, the disposal of dust, ashes and clinker. Nor will the need for attention end there, as with the necessarily small boilers and furnaces care will have to be exercised to maintain steam and keep it up to a steady and reasonable pressure even supposing a continuous feedwater system is adopted. Lastly, there will always be the dread of prosecutions under Clause I., Section 3, of the L.G.B. Regulations hanging over users, until something like a revolution in the methods of preventing the emission of "any smoke or visible vapour" is effected. Difficulties such as these are not to be disposed of lightly, yet as a matter of personal opinion the writer inclines to the belief that before so very long most, if not all, of them will succumb to

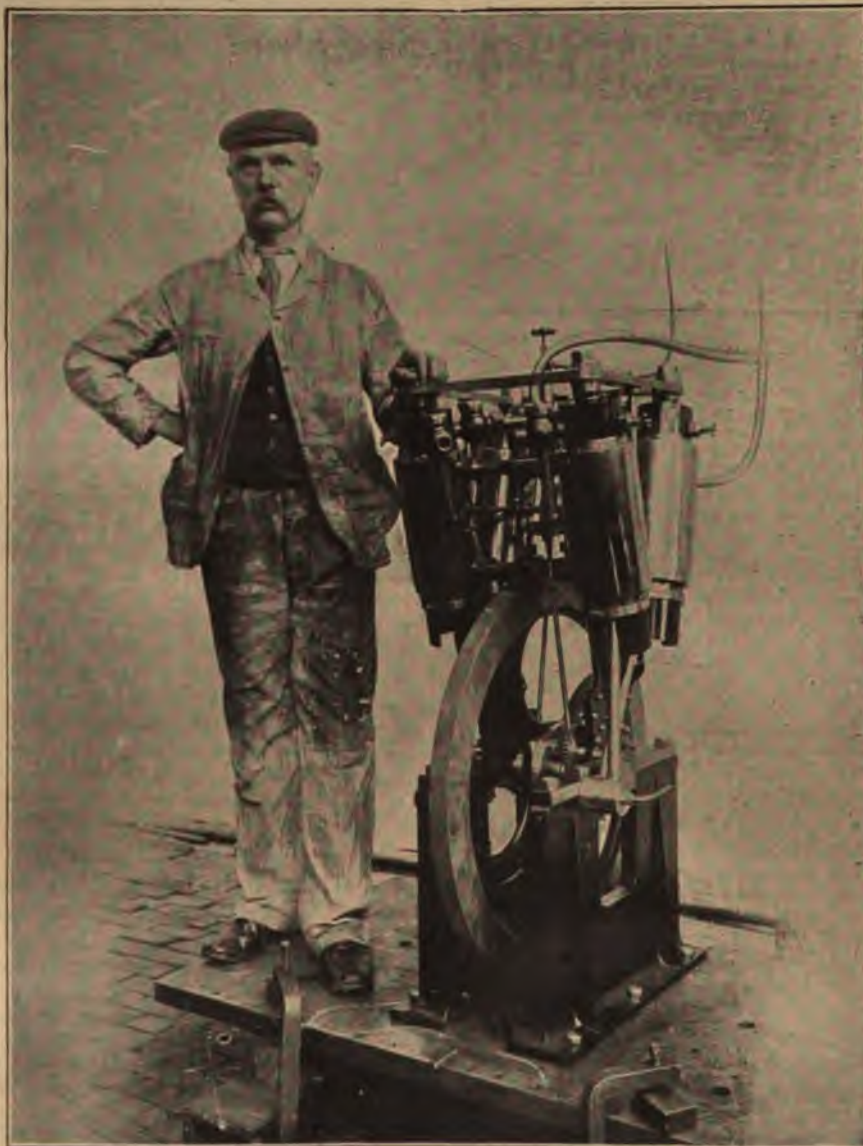
engineering ingenuity, and oil will have a tough rival in steam, unless a happy coalition of forces is eventually consummated.

Oil.—Its advantages can best be indicated by enumerating its disadvantages, since when these are more or less disposed of, the rest goes without saying. Practically speaking there are three drawbacks—vibration, smell and danger. We will take them in this order. The excessive vibration is due to the fact that when once started the motor never ceases running. Naturally, therefore, at low speeds the carriage vibrates violently. We shall show later on how much being done to reduce this trouble, which appears with a speed, and is a somewhat mitigated consideration if the motor once starts needs no further attention.

Smell there is getting out of at present, but as it is largely due to the escape of unburnt hydrocarbons and everything that possible is being done to ensure complete combustion on the grounds of economy, apart from convenience, there is good reason to expect

an improvement in this direction very soon. It is the one serious objection that is set against the many advantages of oil. One other aspect on this point we can best deal with in connection with the question of danger.

In speaking of oil motors we mean petroleum motors and not naphtha or benzoline motors. The latter are most favoured by French and other foreign makers, but in this country there is every prospect of these light and very dangerous products being supplanted by the lowest grades of lamp oil. Our Government at present allows a lamp oil to be sold as safe petroleum, which is such a happy mixture of heavy oils and petroleum spirit that it is just suited to the use of oil motors, for



which it is reasonably safe. It would seem not at all improbable, therefore, that the eight elaborate restrictions which have been propounded by the Board of Trade to control the storage and use of oil for locomotive purposes, will have been framed merely to regulate the use of that which is admitted into almost all the homes of the poor in this country as safe lamp oil. This

QUESTION OF SAFETY

is of great importance, and all interested will do well to pay special heed to the above facts. Fires or fatalities have already occurred in London, Paris, and elsewhere, but these have been with light spirit. Ordinary lamp oil has yet to prove dangerous for motor cars, though it has undoubtedly proved itself so for lamps. The conditions of use, however, are so widely divergent that any inference by analogy would be quite worthless. We have thus stated the probabilities and experience must test them, but we have no misgivings as to the result. Another advantage of the less volatile lamp oil is that the smell will be reduced, as it vapourizes slower than benzoline, and its greater viscosity promises to enable the feed to be regulated better so as to obtain more perfect combustion. This belief is further supported by the working practice we shall explain shortly.

Against these three points, then, there must be weighed the advantage of light and simple storage, little want of attention, and that little unskilled, ease of replenishment should the oil run out, cheapness, and lastly, the fact that at present oil is the source of power in the majority of really practicable long distance cars. Whatever its future rivals may be it has the pull at the present moment (and will have where fuel, water, and labour are scarce or dear), and it must not be taken for granted that as time progresses every possible improvement will be monopolised by its competitors. While they are attaining to perfection the disciples of oil will not be idle.

To summarize the position therefore it would appear that for the bulk of traffic—that is to say town to town traffic and heavy haulage—electricity is unsuited, and the use of steam is fraught with conditions and penalties; but to those who want to deal with users, not experimentalists, oil promises ready help. We shall, therefore, henceforward confine attention to these motors in particular.

WHAT IS BEING DONE.

The following particulars we have been able to ascertain for ourselves points of fact, by a self-sought visit of inspection to the motor works Messrs. T. Coulthard and Co., of Cooper-road, Preston, who are building some 24 or more motors of the Pennington type for all kinds of cars and carriages. They also have in hand a number of stationary oil motors for driving dynamos and other gold mining purposes in Western Australia, where the scarcity of water and cost of transport make these self-contained motors of great value. Some of the mail vans they are building are capable of maintaining a speed of eight miles an hour with a load of three tons, the van included.

On the question of cost we purposely say nothing now, but trust to do so when we can quote the result of actual and extended experience. At present the reputed 1/4d. per hour is all there is to go on, and as this is largely based on estimates it is not suitable data for an article of this nature.

The oil that is used—and this is important—is the lowest grade of petroleum, or lamp oil, a sample of which has been found by actual experiment to have a flashing point of 76°F. so that without any further description its identity will at once be known to those who know anything about petroleum.

Under the Board of Trade regulations before referred to, not more than 20 gallons of oil may be carried. This is enough for an ordinary day's run, but of course the storage tanks are built to suit the carriages in both form and capacity, and, therefore, vary greatly. As the use of burning oil increases it is probable that the present limit of 20 gallons will be raised should it be necessary.

For the sake of simplicity we shall limit our detailed description to one of three 16 HP vertical motors being built to drive the mail and passenger coaches of the WEST AUSTRALIAN FREIGHT & EXPRESS Co., one of which is represented in the accompanying illustration. The dimensions are 30 inches in height, 22 inches wide, and 22 inches from back to front, exclusive of fly-wheel and stand.

It will be noticed that there are four cylinders, the force of the explosion in which is communicated to the crank alternately in the following rotation:—1st back, left hand; 2nd front, right hand; 3rd back, right hand; 4th front, left hand. By the constant repetition of this balanced cycle the vibration is greatly reduced, the jerks of each explosion following so quickly and regularly as to virtually afford a constant propulsive motion, which is further steadied by the momentum of the heavy flywheel. The necessary distribution of oil is attained in an ingenious way, while an additional feature is that the supply of the oil can be regulated according to the variation of the speed or the load. These conditions tend to minimise the vibration to a large extent, and we understand further experiments of a private nature are in active progress, which aim at lessening it still more.

At the same time, apart from the motor, we were able to see a newly designed carriage built for the firm, the body of which was hung on springs which made it entirely independent of the frame which carries the motor and gearing. Consequently the vibration of the motor, such as it is, instead of being communicated to the carriage body, and its occupants, is taken up by the special arrangement of springs. The method employed is a new and sound departure, if it is not the first practical application of this notion, which as far as we can learn it is.

Reverting to the mail cars, the wheels are a most important feature, as they are fitted with 9 inch Pennington non-puncturable pneumatic tyres. A pointed nail cannot be driven into them with a hammer. They enable the extensive tracts of sandy and arid soil encountered, to be travelled over with ease and speed, the necessary breadth of ordinary wheels having entailed very heavy going on decent ground, and only partially overcome the troubles of traversing the sandy stretches.

Messrs. Coulthard have recently erected a new galleried shop, 160ft. by 52ft., which is to be devoted entirely to oil motor construction, and to judge by the way it is being fitted up it is evident they have no mean faith in the future of oil motors. In fact, not only is the shop to be devoted to the production of oil motors, but all the power that will be required is to be supplied by a large and specially modified oil motor. This is a telling statement, and directly opposed to the attitude of the gentleman who while extolling the advantages of electricity for lighting and heating, was illustrating his claims with electricity from a dynamo driven by a gas engine not five yards distant.

We now come to the consideration of

THE FUTURE.

The auto-car is as yet in the infancy of its regeneration. We have shown what oil is doing, and what steam and other forces are likely to do. It is only a question of time. The great opening lies in the direction of self-mooving vehicles for light and heavy loads, and on this account it is most probable that the trials under the Royal Agricultural Society's supervision will be productive of much that is new, and many improvements. The competition will be in two classes, for light load vehicles, which would take the place of light spring carts, for carrying loads up to two tons, and for heavy load vehicles capable of carrying four tons, the weight being in each case exclusive of the weight of the vehicle. Two prizes of £100. and £50. will be offered in each class, and the vehicles competing must comply with the requirements of the order issued by the Local Government Board, under section six of the Locomotives on Highways Act, 1896. The trials will take place early in June, 1897, and will include a run over a distance of 50 miles out and 50 miles back. The prizes offered are worthy and the conditions reasonable. The entries close on April 1st of this year. Then, again, in engineering circles equal encouragement is being given to competitors of the experimental class, from the trial of whose notions no doubt something progressive and tangible will result.

The steam locomotive was not perfected in a trice, and in coaching days its tricks and failures caused it to be the butt of many wits, but it survived the jibes, ousted the jesters, and has eventually provoked mildly indulgent mirth at the expense of those who thought John o' Groats and Lands End as far asunder as the poles. So with the auto-car. It has found a sphere; it will fill it and then extend it, but not all at once. If it were something that could be perfected in a year it would not be able to foreshadow the revolution of local traffic, as it is now doing; nor do we think its shadow will wane, and therefore it should be heeded and early use made of the prospect it provides.

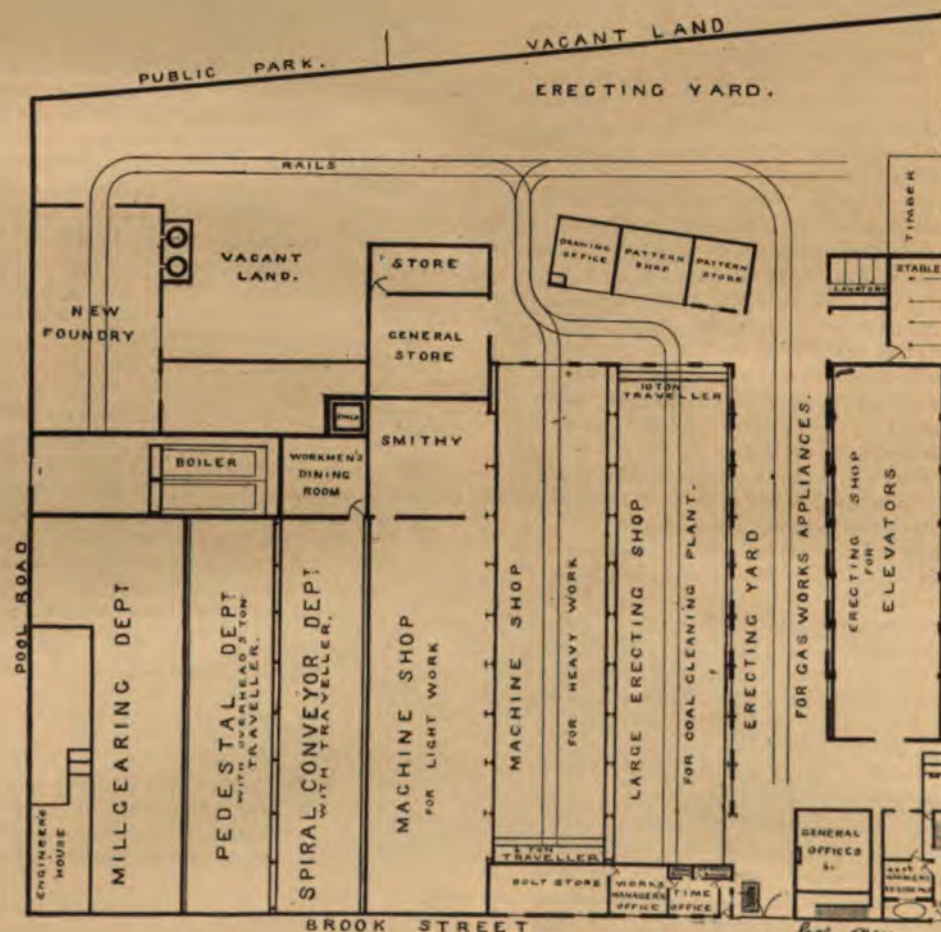
TRANSPORT APPLIANCE WORKS, SMETHWICK, BIRMINGHAM.

NEW CONVEYOR CO., LIMITED, OWNERS.

[SPECIALLY CONTRIBUTED.]

THE general effect of the evidence which has been gathered and put forth in addresses and treatises by practical men, on practical and commercial subjects, goes to prove that every class of the community has gained by the changes brought about through the universal adoption

these *facile* penman clothe their theories, as they are aware these theorizers are without any personal knowledge of the real world of industry, and are consequently unable to understand how vast have been the advantages conferred on peer and peasant alike by the mechanical methods so widely adopted for the production of every kind and description of manufactures during the last quarter of a century. Our manufacturers and captains of commerce can therefore look upon these visionaries as strange, yet, perhaps, consistent philosophers, who dream their dreams and look ever backward with tender regret on the



of machinery, but the class that has reaped the greatest benefits is the day-labourers in factories and workshops. So much may be stated as a fact known to all—except the new school of writers on social and labour questions, who assert in the articles they have contributed so largely to the popular periodicals, that the one effect of the use of machinery and rapid additions to capital has been the diminishing of the comforts of the unskilled labouring population. We need not do more. It is a state that experienced and well informed men, actively engaged in business, give little heed to the pretty phrases in which

past, and are thereby blinded to the fact that the world is always stepping forward on the path of progress by quickened and ever-widening strides. While these *doctrinaires* deny that there is general progress in art and commerce they readily admit that the rapid forms of transit, by means of railways and steamships, have fused the different elements of society together, and they concede that every improvement in the means of locomotion benefits all classes by the increased facilities for the interchange of the productions of the art and commerce of the world; and we would only be repeating an oft-told tale if we referred

here to the long list of advantages which inventions, scientific discoveries, and improved machinery have made the common property of all classes, by a vast increase in personal comforts and an equally extensive lessening of the severe manual toil formerly performed by the masses of the population. While all this is now admitted, so far as it relates to the great inventions which abridge distances in the passing of people and merchandise from town to town and from one country to another, it is generally overlooked that equally far reaching and advantageous progress is going on inside workshops, mills, and factories, in the adoption of Transport Appliances for the automatic transmission of materials of every class and kind. One example of the manner in which the use of self-acting appliances have been adopted to carry materials in workshops and mills will serve to indicate generally what has been done; and we could not perhaps find a better means of giving our readers a fair knowledge of this important matter than the publication of an article on the "Transmission" Machinery made by the New Conveyor Company, Limited, with illustrations and description of the engineering establishment which they have designed and equipped with special tools for the rapid and economical manufacture of their labour-saving specialities:—

THE NEW CONVEYOR COMPANY'S WORKSHOPS.

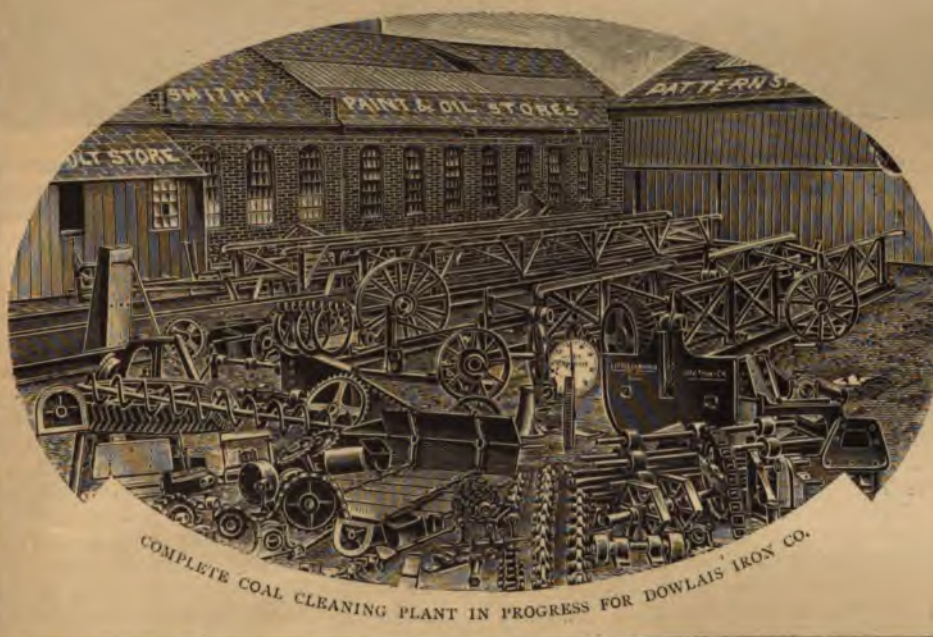
It is about six years since Mr. Gilbert Little conceived the idea of establishing a private limited company, to promote the general adoption of Conveyors and elevators in works, mills, and factories, to transport almost anything and everything, and the company has been an unqualified success from the day it started on this mission. During the first year of the company's existence the Conveyors and Elevators were manufactured at two very small sheds, almost nude as regards tools or machinery, at Oldham and also at Accrington.

As the demand for the labour-saving appliances increased, additional manufacturing power was found at Aberdeen and Glasgow, but both these cities being too far removed from the manufacturing districts where self-acting machinery is in greatest demand the aim of Mr. Gilbert Little was the equipment of suitably situated and specially designed workshops, in the centre of Industrial England, and the magnificently laid-out engineering and metal working establishments which we illustrate are the realisation of that aim. The Transport Appliance Works are about equi-distant from Soho Station and Smethwick Station, on the London and North Western Railway (about four minutes walk from either), and are also in close proximity to the Handsworth and Smethwick Junction Stations of the Great Western Railway. In going to the works from Smethwick Station the visitor passes through Union-street to Brook-street, and a reference to our plan of the works will show that the first part of the Transport Appliance Works is the Assistant Manager's house. In the rear of this residence will be seen the erecting shop for Elevators. All kinds of the lighter class of Elevators for grain, seeds, powders, sodas, salts, sugar, sawdust, and small coal are made in this shop. Adjoining the Elevator

branch is the department for the manufacture of appliances for modern "Inclined" Gas Retorts. This department of the works is under the management of Mr. Maurice Graham, M.I.M.E., who, in conjunction with Mr. Little, has been chiefly instrumental in perfecting the principle of charging the coal into gas retorts by means of the application of the law of gravitation, and thereby dispense with the very severe labour of the stokers shovelling the charge. Complete Automatic Coal, Coke, or Lime Handling Plants have been supplied to the works of the following Gas Companies or Corporations:—The Gas Light and Coke Company, London, South Metropolitan Gas Company, London, North Eastern Railway Company at Gateshead and Darlington; also to the Corporations of Leeds, Huddersfield, Oxford, Burnley, Coventry, Glasgow, Edinburgh, Leigh, Nelson, Luton, Carlisle, Burton-on-Trent, Maidenhead, Middlesbrough, West Hartlepool, Rochdale, Newcastle-under-Lyme, Paisley, and numerous smaller Companies and Corporations. Alongside the Gasworks department is the main erecting shop, fitted with a 10-ton overhead traveller. In this shop, which is under the charge of Mr. R. Altenheim, the large Elevators, Conveyors, and Accessories for coal washeries, and complete systems of machinery for the cleaning and sizing of coal are manufactured; and it is claimed that some of the largest and longest Conveyors and Elevators in the world have been made therein during 1896, and these included two

70 ton per hour Elevators for the Rand Mines, a 300 feet Conveyor for a range of Coke Ovens at the Powell Duffryn Colliery; also fifty arrangements of Conveyors, ranging in capacity from 10 to 300 tons per hour. The Conveyors for the 10 tons per hour plants were 12 inch wide, and those for the 300 tons 6 feet. Next to the main erecting shop is a corresponding building (only not so high), in which are arranged all the heavier tools, including a lathe with a 30 feet bed for turning

THE COLLIERY DEPARTMENT.



heavy shafting, two sets of powerful bending rolls, one set with an independent engine and massive rolls, 14 feet by 18 inches, and the other set with lighter rolls to turn out the Conveyor troughs and Elevator casings. In this shop are also arranged the Slotting machines, Keyway cutters, Punching and Shearing machinery, Straightening and Curving tools, large Radial Drills, Iron Saws, Angle, Tee, and Channel iron manipulating tools, and the Metal working plant. This shop is fitted with a 6 ton overhead traveller, and it is the same length as the main erecting shop, viz., 120 feet. Mr. Gilbert Little may very proudly claim that the main erecting shop and this large machine shop form, with the adjoining workshops, an engineering works second to none in any part of the Midlands, or any other district.

The next shop contains the lighter class of tools, and is equipped with medium and small-sized lathes, about a dozen boring machines; but a special feature is the Spiralling Tool, fixed at the door leading into the Spiral Conveyor Department. Mr. Little informed us that there is not another such useful or powerful coiling tool in existence, as this machine, specially designed to turn out Conveyor Spirals of any diameter or pitch. Spirals from 4 inches diameter to 40 inches



FIG. 2.

are coiled of almost any depth of steel bar, at the rate of 200 feet per hour, and the best proof we can give of its strength is the fact that fourteen spirals for the Acetylene Retorts at the Royal Arsenal were coiled on it, out of bars $\frac{3}{4}$ in. thick by $2\frac{1}{2}$ in. deep and 14 in. in diameter. Conveyors "for the million," can, therefore, be made by this novel and powerful tool at a very nominal cost.

Behind the lighter machine shop is the Smithy and Forge. The steam hammers are Massey's, but the open hearths, furnaces, cranes, and fittings were bought at the sale which occurred early last year at the famous Soho Foundry just after Mr. Little took possession of the Transport Appliance Works; and he informs us that he bought these tools and machines out of reverence for the memory of his great countrymen James Watt, who owned the Soho Foundry for so many years. All the other tools in every department of the Transport Appliance Works are entirely new, many of them of special designs for the particular class of work for which they are used.

In the front of the works and next to the lighter machine shop is the Spiral Conveyor Department where Conveyors of every size, with or without steel, iron, or wood troughs and casings are made. This shop is fitted with a quick 3-ton overhead traveller so that the Conveyors, either in their troughs, or as spirals only, can be shifted at will by the erectors. The Spiral Conveyor Department has been fully employed throughout the whole of 1896, and orders were never so abundant as they are at the present time of writing.

Parallel with the Spiral Conveyor Shops are the Pedestal, Pulley Shafting, and the Mill Gearing Department, and like the Spiral Conveyor Shop they are provided with quick overhead travellers. Everything, therefore, for the "Transmission of Materials" and the "Transmission of Power," is made in these Workshops, so they are very aptly and, we think, very happily designated by their creator "THE TRANSPORT APPLIANCE WORKS." Further reference to our illustration will show that the Workmen's Dining Room adjoins the Spiral Conveyor Department; the new boilers supplied by Galloways being in the rear of the Pulley and Mill Gearing Shops, while the Engineer's House forms the corresponding corner at the opposite end to the residence of the Assistant Work's Manager, Mr. William Little, a brother of the managing director, is the general manager, and he resides at Cliffe House, in close proximity to the Works.

In the rear of the Workshops there is an extensive erecting yard, with narrow gauge railways from the Workshops, and a convenient

site is arranged off Pool-street for the new Foundry. Altogether, doubt if such an extensive and complete engineering and metal works were ever before designed, equipped, and in full operation in the space of twelve months; and having said that, we feel we are to pay any higher tribute to the tireless energy of Mr. Gilbert Little.

THE NEW CONVEYOR COMPANY'S SPECIALITIES.

Having dealt with the Transport Appliance Workshops, a productive machinery installed therein, we now turn to the department of the "Transmissive Specialities," produced. We have already referred to the numerous gasworks where the New Conveyor Company's automatic coal, coke, lime and oxide distributing machinery have been adopted; and can only give a very brief *précis* of the Conveyor Company's new system of charging gas retorts by means of which, from the time the coal is emptied from the railway wagon to the time it is coke in the storage yard, there is no manual labour required, that of opening and closing the doors and adjusting the conveyors. Thus the average cost of the labour carbonizing coal for gas-making is reduced from 3s. to 1s. 4d. per ton. At the Leeds Corporation Gas Works, the New Conveyor Company (under Little and Graham's patents) are at present engaged erecting one of their extensive automatic retort houses in the world, fitted with their self-acting checks to control the supply of coal to 192 "Inclined" retorts, each 20ft. long fixed at an angle of about 32° from the horizontal. It is perhaps too large a plant for us to describe to convey a clear idea of the new system of putting the coal into gas retorts, so we think it best to confine our remarks to the new gas works which is in progress at the Corporation of Nelson, Lancashire. Although this works is fitted with only 48 retorts, we can see from the drawings that it is more completely automatic than the huge works for Leeds, and the machinery to manipulate the coke at Nelson is of a more elaborate description. At Nelson the coal is brought into the works from the Lancashire and Yorkshire Railway, and is discharged from the waggons into a self-regulating hopper fixed over the retort breakers. The coal passes through the breakers to the elevators which shoot it into the conveyors fixed over the range of storage hoppers fixed in the roof of the retort house above the 48 retorts. Under these storage hoppers, smaller hoppers, or measuring chambers, are suspended, each containing a charge for a retort; and by means of an arrangement similar to a "measuring mouth" on a "shot pouce" powder flask, the coal is passed from the measuring chamber into

retorts. When the charge of coal is carbonized in the "Inclined" retort the lower mouth-piece is opened, and the check or "stop" removed, when the coke slides, by its own gravity, down the sloping retort into the Conveyors, which carry it to the waggons, receiving hoppers, or storage yard. This succinct summary of the process of automatically dealing with the coal and coke at the Nelson Corporation Gas Works may be taken as a fair example of the many similar plants designed and erected by the New Conveyor Company. Equally complete systems have been arranged to feed the coal into ranges of Coke Ovens at Collieries, batteries of Gas Producers and Boilers, and rows of furnaces at Bolt and Rivet Works and Ironworks. It would occupy too much of our space to catalogue the names of the companies and firms who have been supplied with automatic Conveyors and Elevators by the New Conveyor Company, Limited, and at most we can only give a few particulars of the various arrangements of interest to our readers, and these will, to some extent, serve to indicate how universally Transport machinery is now used in factories, mills, and works of every kind. The Company have supplied Elevators and Conveyors for almost every purpose, to elevate and convey nearly every material known in Chemical Works, including alum, alkali, anthracene, ashes, barytes, bamboo, bones, bark, barrels, boxes, bales, bricks, briquettes, cement, clinkers, chips, clay, coal, coke, chalk, cocoa, copper, cork, nitrate, nutmegs, fish, fullers' earth, lead, gum, lime, megass, manure, ice, ores, oxides, phosphates, pig-iron, powders, peat, pulp, quartz, rock, rivets, salt, soda, sugar, sand, sawdust, slag, screw-nails, sacks, steel, soap, straw, and tannery refuse; and a large majority of the chemical manufacturers of the United Kingdom are buyers of the New Conveyor Company's specialities to manipulate one or other of the above named materials. The different designs of Conveyors also lead themselves to a vast variety of combinations, so that a series can be arranged, superposed or alongside, to form automatic Drying, Mixing, Washing, and Dividing Machines. In this connection we may mention a series of vertical or horizontal Conveyors, with jacketed steam troughs, or the direct application of coal or coke fires under the troughs to dry white-lead, and many other substances; as well as elaborate arrangements of Conveyors and Elevators to wash and dry coal for Coke Ovens, patent fuel factories, and the slurry for clinkering furnaces.

We reproduce photographs of three views taken on a recent visit. Fig. 1 shows an interior view of the Spiral Conveyor Shop, with an

order in progress for Reckitts, Limited, Hull. Fig. 2 shows a view of the interior of the Elevator department, with the machinery for an Automatic Coal Handling Plant, for Messrs. James Miller and Co., Limited, Coatbridge. The order for this plant, which included two large Elevators and two large Conveyors, one 168 feet and one 185 feet long, to feed the coal into three batteries of furnaces, was booked at Coatbridge on the 24th of November, with the undertaking that it would be delivered by the 24th of December, so that the machinery could be erected at Coatbridge during the fortnight which the Scotch works close for the New Year holidays. Our view is from a photograph taken on the 8th of December, fifteen days after the order was booked, and we are informed the whole of the machinery was delivered within the time arranged in the contract. The oval view shows the Colliery department, with the machinery for a complete Coal Sizing and Coal Cleaning Plant for the Dowlais Iron Company.

In the foregoing notes we have referred only to the appliances for the "Transmission of Materials," but the New Conveyor Company's Transport Appliance Works are equally well arranged and equipped for the economical and efficient manufacture of accessories for the "Transmission of Power." Special plant has been put down in this department, including a powerful lathe with a 30 feet bed, to deal with heavy shafts; a specially designed pedestal boring tool to finish four pedestals, any size of bore, at one operation; and a complete system of machinery to turn out steel pulleys with solid or tubular arms. We noticed about a thousand pedestals in stock, and ordinary orders for standard sizes can be sent out at once, which is something unique in engineering practice.

In the Gasworks Department a special system of tools has been arranged to turn or plane four furnace doors, or four retort mouth-pieces, at one operation; and there is also a department for Chain Belts of steel, malleable cast-iron, or compressed steel.

The Pattern Shops contain the patterns of over 300 different sizes of Sprocket Wheels, to suit the various sizes and qualities of chain-belts, and several thousands of feet of chain belts are kept in stock to ensure prompt deliveries. Altogether the history of the New Conveyor Company is a record of sustained success, and we have no doubt the completion of the new works at Smethwick will prove the point from which a period of still greater development in the use of labour-saving appliances will take its origin.

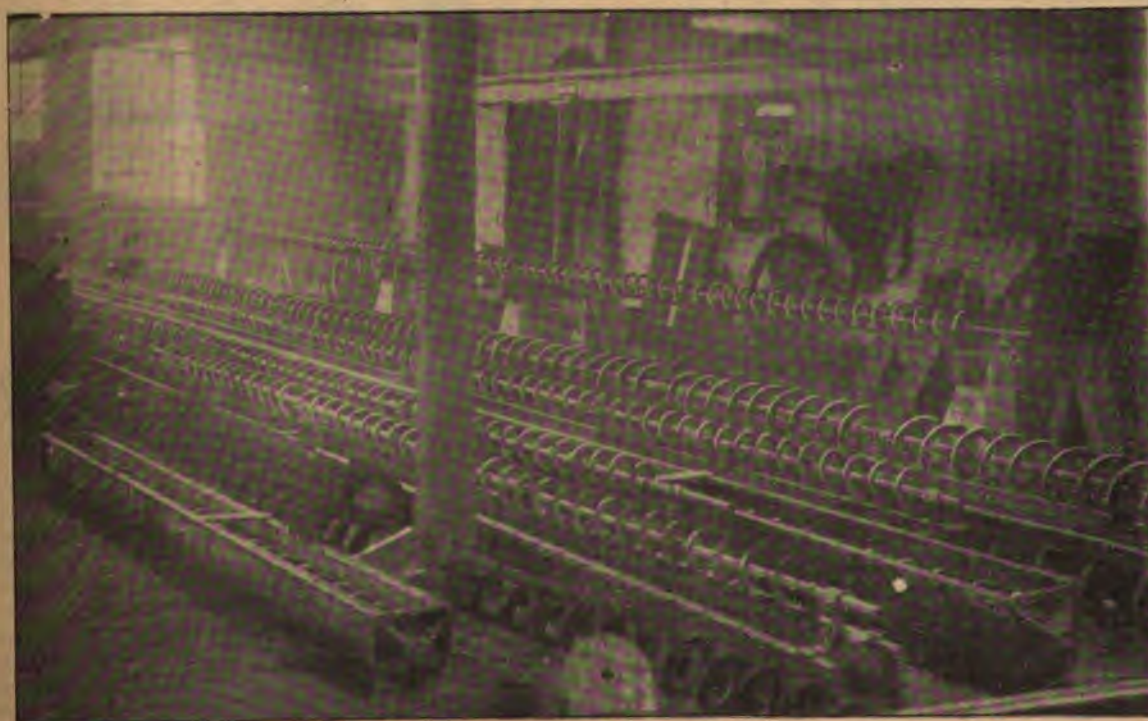


FIG. 1.

Laboratory Hints & Chemical Plant.



DELICATE MAXIMUM THERMOMETER.

The accompanying illustration shows a special form of a very delicate maximum thermometer, made by Herr W. Uebe, of Zérbst.

It is calibrated very minutely so that very exact readings can be obtained.

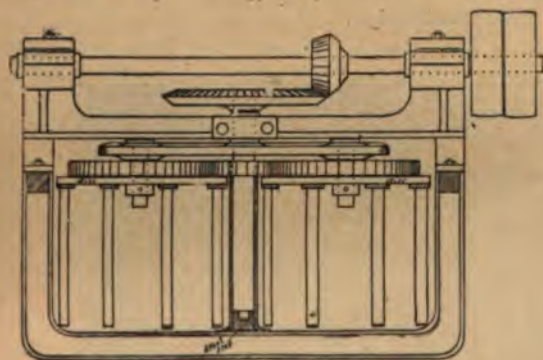
In order to facilitate the readings which, owing to the minuteness of the scale and fineness of the mercurial column would, under ordinary circumstances, be a difficult matter, the back is over-laid with a special blue enamel.

This enamel allows the thread of mercury to be read with ease even in diffused light, and minimises the chances of error, as it assists the magnifying properties of the stem by reflecting the light conveniently.

Owing to the magnifying arrangement the thread is shown in a wider margin. This arrangement is specially convenient for very delicate clinical and chemical thermometers, of which Herr Uebe makes a speciality.

A HANDY MIXING PAN.

We referred some time since in these columns to the mixer made by the Archimedean Company of 6, Starley-road, Coventry, and now illustrate another form of mixer specially suited for mixing compos, oils, and greases that require to be kept in the fluid state while being incorporated. Being steam jacketted this is easily accomplished. This particular form of mixer is called the "Planetary," as the mixing blades are made to rotate on the sun and planet system. The discs under the horizontal cogwheels carry a series of screw propeller blades which rotate individually as they circle round the

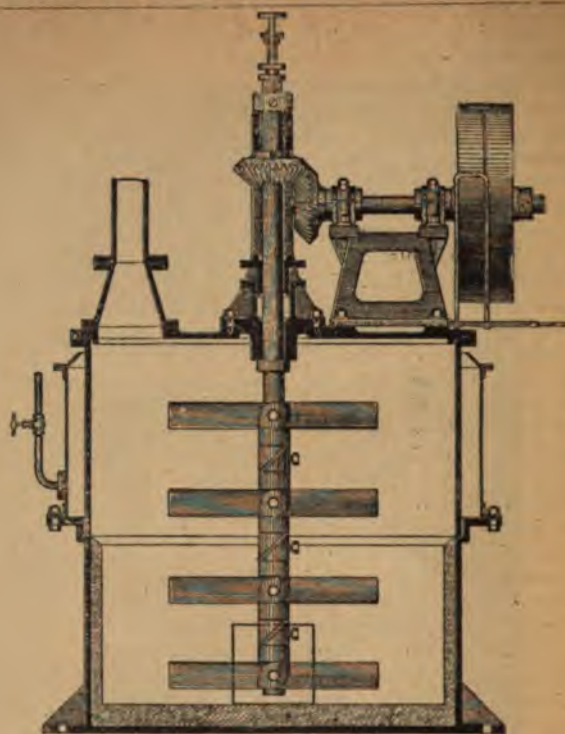


THE "PLANETARY" MIXING PAN.

pair. This statement, coupled with a reference to the diagram, will show how thorough a mixture can be achieved.

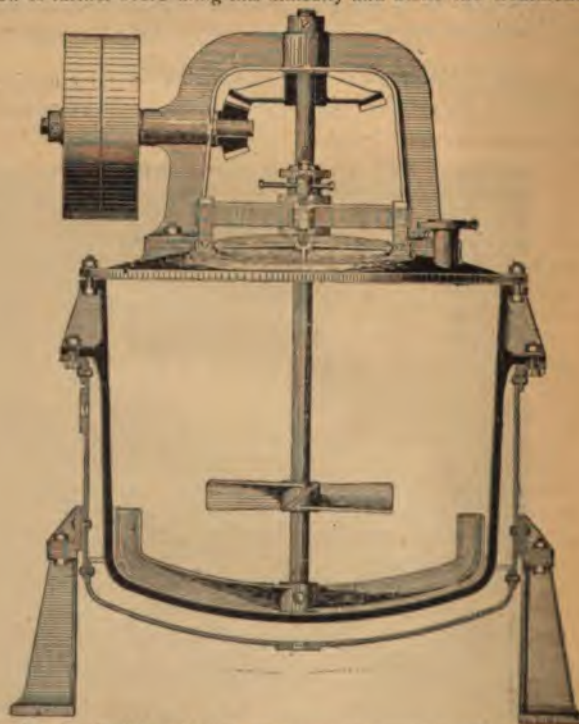
ANILINE STILL.

It will be noticed that this still is of the vertical type, this form being that which is more generally used in Continental practice. Among the points to be noted there is the acid resisting lining of the bottom portion in which the charge of iron chippings or "swarf" and hydrochloric acid are placed. Also there is the steam jacket surrounding the upper portion. The agitators are also differently arranged, being 7 in number, and fixed at right angles alternately. The charge used is generally about 660 kilos. (kilo = 2.2lbs.) of "swarf," 600 of nitrobenzol, and 60 of hydrochloric acid.



LIGNEOUS ACID STILL.

This apparatus is designed for the distillation of vegetable acids and crude acetic acid. It is provided with a steam jacket so as to ensure even heating and avoid the destructive action of excessive local heating, which almost always results when direct firing is resorted to. With a view to further overcoming this difficulty and assist the treatment, the



vessel is fitted with a stirring arrangement specially designed to keep the bottom clear and free from sediment, while a propeller blade attached to the central shaft near the centre of the pan keeps the upper layers in circulation. This plant, as well as the foregoing, is made by Herren Gebrüder Bolze, for whom Mr. C. Harzer, of Gracechurch-street, London, is the representative.

A NEW CONDENSER.

During the last few years many attempts have been made to introduce substitutes for the Liebig condenser. Of these, the Soxhlet bulb cooler is the only one which has to any extent established itself, and even this has the serious drawback that it can only be employed as a reflux condenser.



FIG. 1.

The present apparatus was designed by Dr. Walter to meet a case where not only had liquid additions to be made to the contents of a boiling flask and the generated vapours to be completely arrested, but the flask itself required to be vigorously shaken throughout the operation. The exigencies of the situation are so completely met that a detailed description cannot fail to be of interest to analysts and chemists.

The apparatus can be easily made in either metal or glass, but the present description applies to the former material. In Fig. 1, A and BB, are two thin metal tubes of slightly different diameter, and



FIG. 2.



FIG. 3.

soldered together at the points B and B. CC are small connecting tubes soldered on to BB, to provide an inlet and an outlet for the cooling water. The small tube D serves for the escape of non-condensable gases or expanding air in cases where the aperture A is closed by a drop funnel. The annular space between the two tubes is divided on each side by partition strips of metal reaching to within a few millimeters of the bottom, so that the cooling water is forced to

traverse the whole length of the space twice—first in a downward and then in an upward direction.

Figs. 2 and 3 indicate methods of applying this condenser. As in Fig. 2, when placed in the neck of a boiling flask, the contents are kept at a constant level, though, generally speaking, no cork is necessary, the small water-ducts affording sufficient support.

Fig. 3 shows the apparatus as employed in connection with a Soxhlet extractor, but it will be noticed that in this case only the inner cooling surface comes into play. The sole makers are Messrs. Dr. Bender and Dr. Hobein, of 76a, Gabelsberger-strasse, Munich.

A NEW MARGARINE TESTER.

The test is based upon the fact that even a very small addition of margarine to pure butter renders the melted mixture so opaque that, after twice heating, it is impossible to read through it a word for instance that may be inscribed on the glass in which the melting is performed.



FIG. 1.

The apparatus in use up to the present often breaks down in the hands of inexperienced operators simply through the absence from the glass of the necessary mark or word which helps to measure the extent of the opacity.

In the new margarine tester, however, constructed by Dr. Katz, the word butter is "flashed" into the melting glass in blue, and after a two-fold melting the operator takes notice by means of light reflected from the polished sides of the apparatus whether the word "butter" can be distinctly read through the melted fat mixture.

In the case of pure or even old or rancid butter there is no difficulty in reading the indicator, but this is not so when the butter contains even a trace of margarine.

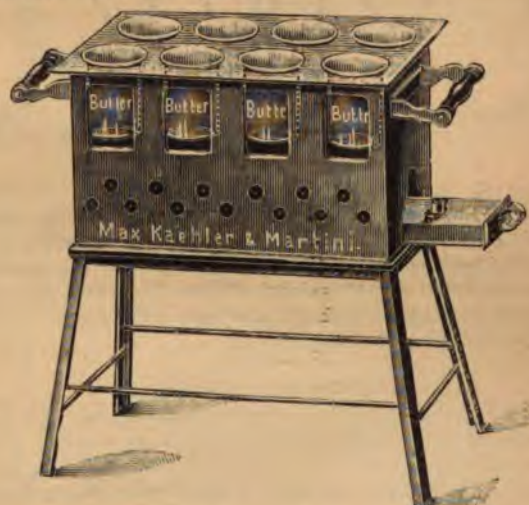
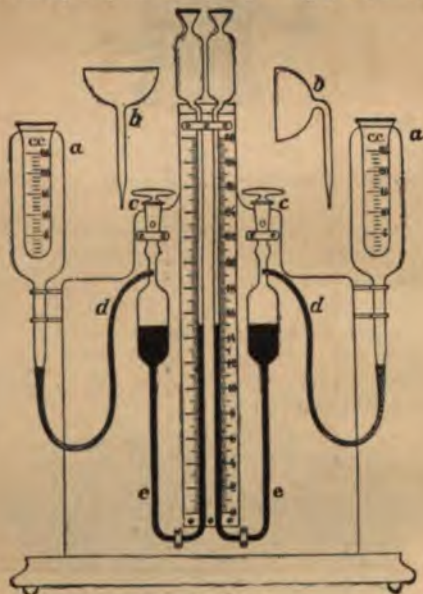


Fig. 1 shows a form of the apparatus adapted for single observations, while Fig. 2 shows a larger form suitable for making several determinations simultaneously. The simplicity and cheapness of this margarine tester render it extremely valuable for the examination of suspected market samples in trade, and even for the control of domestic purchases. The apparatus is made by Messrs. Max Kaehler and Martini, of 50 Wilhelmstrasse, Berlin.

A DIFFERENTIAL-THERMOSCOPE.

This apparatus is specially intended to be used for physical research and for the performance of chemical and delicate electro-chemical experiments. In a short time it has been introduced into more than 150 universities, technical institutes, and other schools in Germany, Austria, Roumania, and Belgium. The apparatus is of an entirely new type, and by its aid about 120 new experiments can be done, including some of Tyndall's, hitherto most difficult to demonstrate, such as the difference in conductivity of wood according to the nature of the fibres. And also all the experiments on the radiation of heat, and its absorption through gases. All the heat generated operates (in the cases where the bulbs are used) on the inner cylinders (*cc*). The air expanding operates on two finely calibrated manometres, the fluctuations of which can be seen at a distance. Thus results are possible which never could be obtained with a thermometer, the latter only being visible to a few persons near at hand, but not to an audience. Two stopcocks (*c*) allow the manometres to be levelled at will to the same point. The following demonstrations can be made visible to an audience of some hundred persons, as the larger scale is made transparent, and can be projected on to a screen:—The different specific heats of copper and lead being as 3 is to 4; difference in the conductivity of a rock crystal in fluids and in gases. The heat generated by freezing water, by the compression of gases, by the absorption of air or carbon dioxide. The heat of chemical reaction, the heat absorbed by evaporation, by expanding gases, and by electrical



currents. In many cases the Thermoscope operates a very delicate manometre, by means of which it is possible to show the effect of osmotic pressure. A treatise in German by the inventor (Professor Looser), describing 120 experiments, is to be had for two marks from the firm of Müller and Meiswinkel, of Essen-Rhur, who also send the apparatus on approval, with all accessories. The apparatus has been patented in Germany and England.

A NEW GAS GENERATOR.

As is well known the majority of gas generators suffer from the disadvantage of being unable to effect anything like a complete utilisation of the materials employed. This arises from the fact that the acid used is rapidly distilled by the solution of the salt formed during the decomposition.

In Barge's apparatus, which we are about to describe, this drawback is entirely obviated and the materials HCl and CaCO_3 , for instance, are completely used up, as contact between the calcium chloride solution formed and the fresh hydrochloric acid is entirely avoided.

The apparatus (which is duly protected) consists of a three-necked acid store flask as shown in Fig. 1, into the central aperture of which is ground a tube (*b*) of considerable size and reaching nearly to the

bottom of the store flask. This tube serves to hold the charge employed, such as FeS , CaCO_3 , Zn , etc., and is carried upon a perforated caoutchouc stopper, as shewn. At the same level a small hole in the tube establishes connection with the contents of the acid store flask and permits the inflow of acid to the solid material to be decomposed.

To one of the side tubulures is attached a pressure tube and funnel *a*, and through the other a glass siphon tube *c*, one end reaching to the bottom of the store flask and the other fitted with a pinch cock.



The upper portion of the middle tube *b* is provided with an outlet *d*, and the generation is regulated by merely opening or closing this tap. When the tube *b* has been charged the gas outlet *d* is opened and acid is poured in through *a* till it begins to overflow from the store flask through the small tube hole already mentioned. The generation of gas then commences, but the gas outlet in *b* should be momentarily closed, and more acid poured into the funnel till the tube *a* is about a fourth full, after which the gas will come off or cease with the greatest precision according as the outlet is opened or closed.

It will be at once seen that the solution of the salt formed during the decomposition makes its way downwards through the perforations of the supporting stopper to the lower part of the store flask, and that fresh acid circulates through the small hole in *b* to take its place. When complete saturation is attained the spent liquor is drawn off by the siphon pipe *c* and the apparatus recharged.

In a trial of the apparatus with marble and hydrochloric acid it was found that 94 % of the latter was actually utilised.

This gas generator is made and supplied by Messrs. Max Kachler and Martini, Berlin, W. Wilhelmstrasse 50.

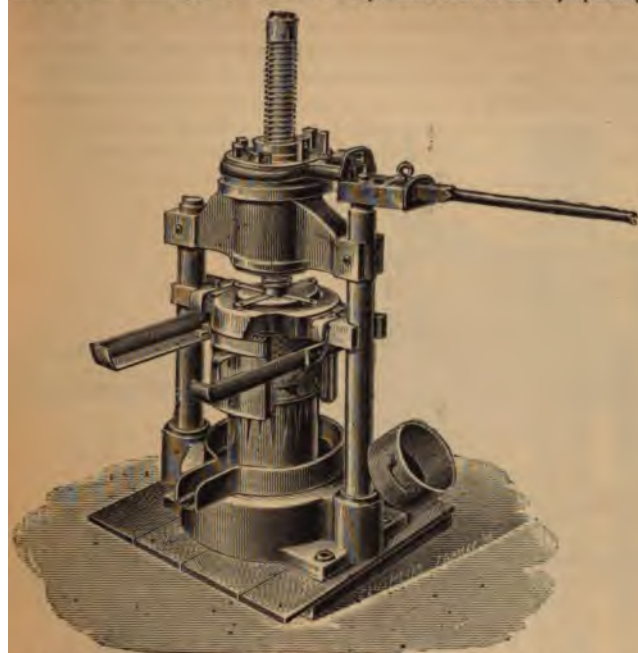
OIL AND TINCTURE PRESSES.

In many ways a handy press is useful in a technical laboratory, and we illustrate here three forms that are specially suited to the requirements of technologists and industrial prospectors. By the latter we mean those scientists who, when investigating the natural resources of a new district or country, have occasion to make experimental trials of oil-bearing seeds and similar products. These presses can also be used in an emergency, with filter cloths, to separate considerable quantities of a solid product from a liquid or other medium, so that in sugar-growing districts they would form a useful accessory to the outfit of a pioneer.

As regards their applicability to general laboratory work there is hardly any need to specify particulars, at the same time the illustrations practically speak for themselves. The following explanatory notes, however, will be useful as indicating the special features of the three different types of presses.

In Fig 1 we have a small laboratory press which, while only giving a low pressure, can be rapidly filled and emptied, as the steel crosshead is moveable. It is not only fitted with a perforated expressing jacket

but also a receiver and collecting trough, so that in the quick working for which it is designed, none of the expressed fluid is lost by spurting.



To facilitate the operation of the press the ram is fitted with a differential and multiplying lever, which is a patented feature of the press.

The form shown in Fig. 2 is specially made for use in pharmaceutical laboratories for tinctures and kernel oils, such as are obtained from cocoa

FIG. 2.

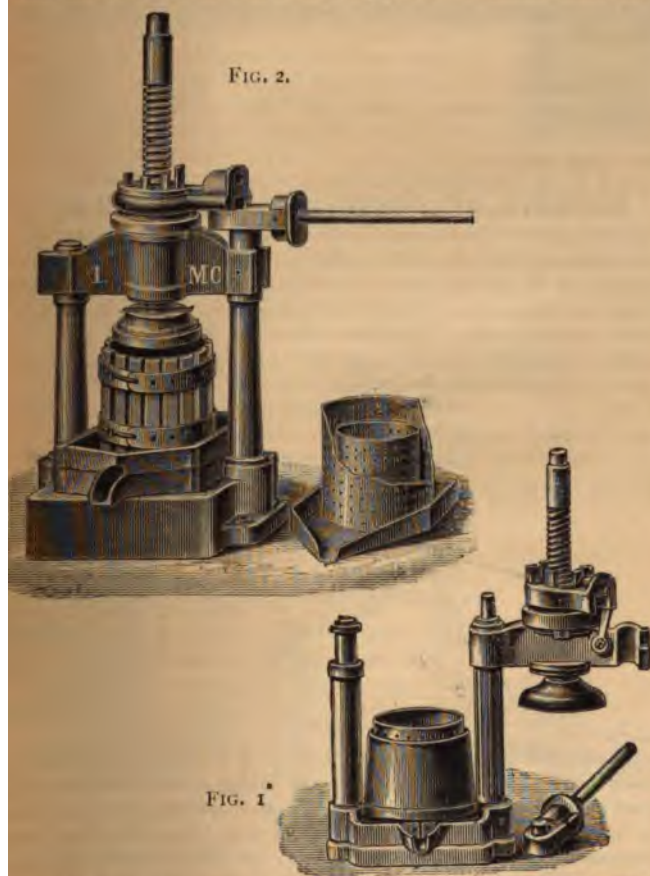


FIG. 1

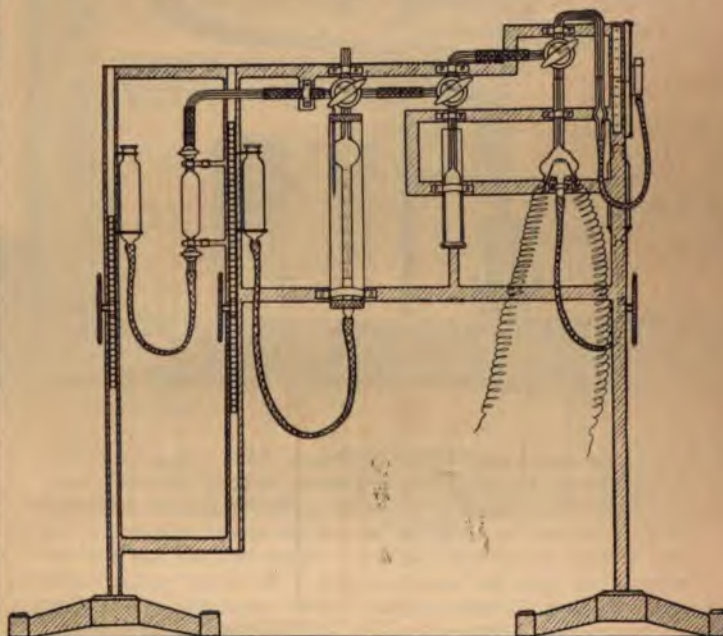
and pistachio nuts. They are fitted so as to be applicable to the extraction of a great number of different products. There are three expression

jackets, two of which are in pure tin plate and of different strengths, for the extraction of oils and tinctures respectively. The third, which is shown in position for use is oak, this wood being specially suited for pressing fruits in the preparation of syrups and essences. This one press, therefore, virtually covers all the ordinary needs of a laboratory.

Fig. 3 illustrates a press intended for semi-industrial operations, being made in large sizes. Slides are provided for carrying the head-plate when charging, &c. By means of the multiplying levers one man can easily obtain a pressure of 150 kilogs. (330 lbs.) per square centimetre (about 0.12 sq. yard). It is specially suited for pressing oil and fatty products, and also mustard seeds. These are all made and patented by A. Duchscher, of Wecker, Luxembourg.

APPARATUS FOR TESTING FIRE-DAMP.

This apparatus consists of the following parts counting from the extreme left of the cut:—(1) An open vessel for mercury; (2) damp-tube; (3) open vessel for mercury; (4) measuring cylinder; (5) bulb open below glass cylinder filled with caustic potash (6); bulb closed by a cock and filled with mercury to the marked line; (7) open mercury



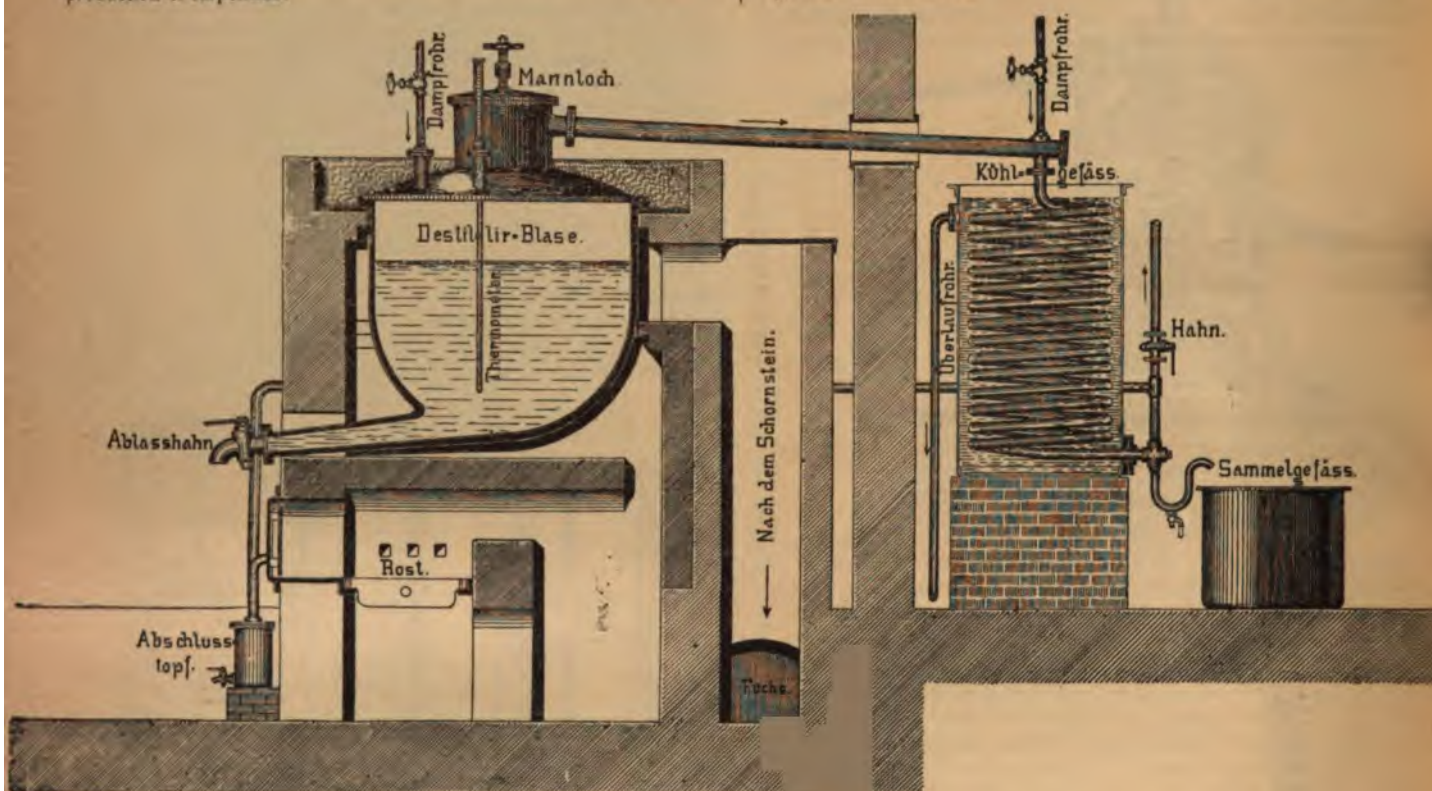
vessel to be placed behind the stand; (8) a little vessel with scale, filled with the water placed behind the stand used to regulate the height of the water column so as to equalise the differences of temperature, vapour tension, and pressure.

The gas is conducted through vessel 1 from the damp-tube into the measuring cylinder, the latter being surrounded by a condenser or cooling vessel, containing a thermometer. The gas is measured between the mercury vessel 3, and the water column 8. To absorb the carbonic acid the gas is conducted into 5. The bulb 5 is filled with glass tubes to amplify the absorbing surface of the caustic potash. The absorption is complete in a few seconds. The volume of gas thus freed of carbonic acid is re-measured as before between the vessel 3 and 8. To burn the methane the gas is conducted into bulb 6. The platinum wire is made red hot by an electric current. The gas is then cooled and measured in the manner described above. The carbonic acid, formed by the combustion of the methane, being exactly half the volume of the burned methane, so that by measuring it the quantity of methane may be known at once. The apparatus is to be had from the firm of Müller and Meiswinkel Essen (Ruhr).

RESIN DISTILLING PLANT.

[SPECIALLY CONTRIBUTED.]

IN the illustration which is here reproduced by special permission from the copyright drawings of Herren Gebrüder Bolze, of Mannheim, a complete plant is depicted for the distillation of resins for the production of turpentine.



COMPLETE PLANT FOR DISTILLING RESIN.

The resin charge runs to about 60 gallons, and is heated to 130°C. or thereabouts. On introducing a current of steam by the pipe shown at the top of the still the turpentine distils over into the condenser, where it is condensed together with the steam and collected in the tank provided to receive the distillate. In this tank the two products separate into layers, the turpentine rising to the top and being syphoned off as it collects. It will be noticed that the condensing portion of the plant is separated from the still by a division wall, so as to prevent accidents by fire. A thermometer tube is provided in the cover of the still so that the temperature can easily be ascertained. Another notable feature is the introduction of a steam pipe at the head of the condensing coil. Should any stoppage occur owing to local condensation, the delivery pipe or worm can in this way be steamed out and cleared. The dome of the still is also provided with a moveable cover so as to facilitate the charging and cleaning operations. This headplate is held in position by a stirrup and screw, and can be fastened down or opened quite independently of the delivery pipe coupling.

This apparatus can also be used for distilling the colophony or rosin left after the removal of the turpentine from the crude resin to produce rosin spirit and rosin oil. In this case, however, much larger stills are usually employed. In this process a certain amount of incondensable gases escape from the condensing worm and would cause inconvenience. A special feature is made of their disposal. It will be seen that the end of the condensing worm is trapped by a swan neck in which a certain amount of the distillate collects. The gases therefore find their way upwards through a pipe, which as shown passes behind the still into a collecting box on the extreme left. Any liquid, etc., is retained in this box, and the gases then pass on into the furnace and are burnt up.

It is important to notice that on the upward extension of the

condensing worm there is a cock, so that in an emergency the gases can be blown off. In the same way on the bottom of the U bend there is a small cock, by which the sealing liquor can be drawn off when the still is idle, so that the pipe may not become choked. Mr. C. Harzer, of 79½, Gracechurch-street, London, is the English agent for the manufacturers.

EXPORTS OF PETROLEUM FROM U.S.A.

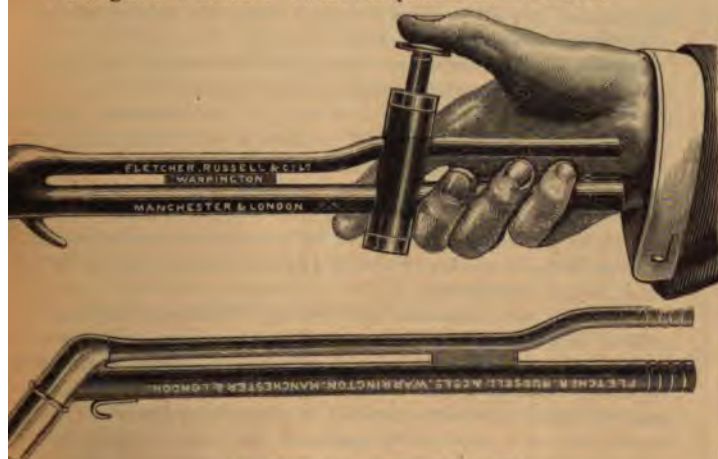
THE Chief of the Bureau of Statistics, Washington, gives the following returns of the exports of petroleum and petroleum products for November, 1896. The total shipments were 71,297,467 gallons, compared with 75,150,487 gallons in 1895. The total for the eleven months ending November, 1896, was 845,431,859 gallons, against 772,540,884 gallons during the same period in 1895. The details of the shipments are as follow:—

	CRUDE PETROLEUM.	Gallons.
Total, Nov., 1896		7,399,224
" " 1895		10,704,080
	NAPHTHAS.	
Total, Nov., 1896		1,174,309
" " 1895		1,533,334
	ILLUMINATING.	
Total, Nov., 1896		57,841,240
" " 1895		58,548,852
	LUBRICATING AND PARAFFIN.	
Total, Nov., 1896		4,548,794
" " 1895		4,364,001
	RESIDUUM.	
Total, Nov., 1896		333,900
" " 1895		210

MESSRS. GEO. G. BLACKWELL, SONS AND CO.—This firm, whose offices are at The Albany, Liverpool, advise us that Mr. G. G. Blackwell, jun., has retired from this firm, and has commenced business on his own account as Blackwell and Co., Leadenhall House, Leadenhall-street, E.C., and from January 1st will act as their London agents. The firm take this opportunity of very cordially acknowledging the liberal support accorded during the past 27 years, and solicit a continuance of the same.

IMPROVED GAS FURNACES AND APPLIANCES.

GAS has for many years been used as a source of heat in laboratories, and it is rapidly increasing in use in industries. In the latter there are numbers of ways in which gas constitutes a most convenient and portable source of heat, and the following are a few of the latest productions of Messrs. Fletcher, Russell and Co., Ltd., of Warrington and London. In the first place we shall refer to a



PERFECTED FORM OF BLOWPIPE

which is quite a new departure in many ways. They are most powerful blowpipes for their size and weight, every part being exactly proportioned. Three jets are supplied which make the blowpipes available at their maximum power for fan or smith's bellows, or with a high pressure blower for coal or oil gas, or Dowson gas. A pilot light can also be added for use with gasoline or air gas. The power of any blowpipe, with a sufficient gas supply, depends entirely on the amount of air used. Quick, short heats cannot be obtained with a fan or smith's bellows, and an air pressure of not less than 1 lb. per square inch is recommended.

All sizes are supplied with or without a simple valve, giving full and instant control over the flame. With an air pressure of 1 lb. per square inch the $\frac{3}{8}$ in. size will braze up to the size of an ordinary latch key or $\frac{1}{2}$ in. brass tubing. The $\frac{1}{2}$ in. size, up to light bicycle frames or $\frac{3}{4}$ in. iron steam pipe. The $\frac{3}{4}$ in. size will braze the heaviest tricycle work or up to 1 $\frac{1}{2}$ in. iron steam tubing, and the 1 in. size will braze a heavy flange on a 4 in. steam pipe. With a good heavily weighted smith's bellows of small size, select the next size larger blowpipe for the same work, using the largest air jet. Small fans, unless run at excessive speeds, are usually very unsatisfactory. For Dowson gas a heavy air pressure is absolutely necessary for economy and good work, and the sizes given for smith's bellows must be selected for this gas, as its heating power is only one-fourth that of ordinary coal gas.



MUFFLE FURNACE.

CONCENTRIC JET FURNACE.

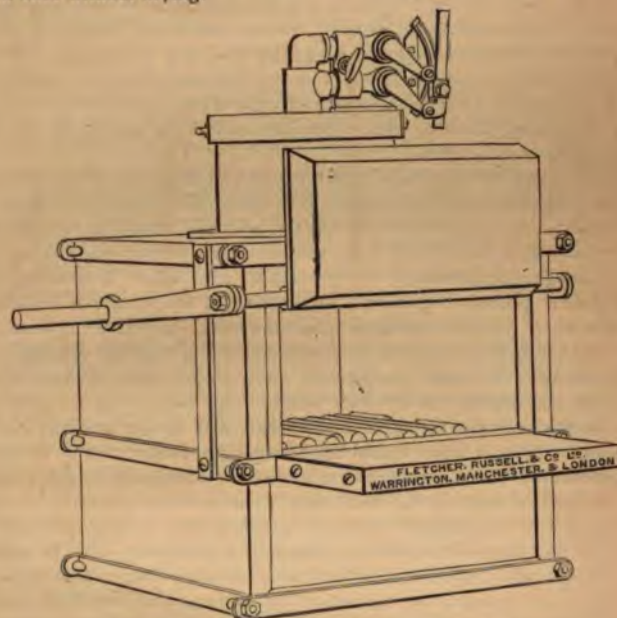
As the engravings are from photographs they show the exact proportions, and are one-third the size of the smallest $\frac{3}{8}$ in. pattern. A Fletcher's No. 3 foot blower will work the $\frac{3}{8}$ in. blowpipe at full power.

IMPROVED MUFFLE FURNACE.

The chief features claimed are the great reliability of the furnace and the absence of any need for air under pressure. They are designed to give the best results at the lowest ordinary day pressure of gas. The temperature is absolutely uniform from end to end, or can be graduated or adjusted to any extent. No. 8 is the pattern specially recommended for silver assays; the larger sizes are designed only for clear red heats, but higher temperatures up to the fusing point of pure copper or silver can be arranged for, without air blast, in the larger sizes.

These furnaces entirely do away with two most serious defects, which have existed in all muffles up to the present, *i.e.*, variations in temperature, causing irregularity in hardening costly steel cutters, dies, and twist drills.

All internally fired refractory casings generally crack in use at the first heating. The cracks are usually of no importance, and do not affect the working or permanence of the casing. Any repairs necessary can be made, or broken parts joined together by a freshly mixed paste of fluid silicate of soda with ordinary fireclay, the surfaces of the fracture being first moistened with the silicate solution, to ensure adhesion. For furnaces working at very high temperatures, no more of the solution should be used than is absolutely necessary. The furnace can be used at once without drying.



THE CYCLONE REVERBERATORY FURNACE.

The essential point of these new furnaces is the new patent "Cyclone Burner." This burner works perfectly with any available pressure of air, from that of an ordinary fan or smith's bellows, to the highest pressures of Root's or Baker's blowers: it is simple, and gives a flame free from the local and cutting action of ordinary blow-pipes or blast burners. The combustion is perfect and instantaneous. The stock size has a 12 in. square inside floor. They are very handy for heating steel dies and rivet heating, but are especially serviceable and welcome for roasting and oxidizing under the usual conditions of reverberatory furnaces in the work of Technical Laboratories.

CONCENTRIC JET FURNACES.

These are now made in the same sizes as the well-known injector furnaces which they are designed to supersede. Those who have used the injector furnaces for the last twenty years will appreciate the following advantages:—There is no gauze to get damaged or choked; no cutting action or cold spot on the crucible; the burner cannot get displaced in use; the burner cannot light back or get out of order with the roughest use. Although these are designed for use with our own foot-blowers, the same system is applicable to a low pressure air blast. These furnaces will fuse wrought iron, tool steel, or pure nickel, and will melt down most of the refractory crucibles usually sold.

DEVELOPMENTS IN THE MANUFACTURE OF CYANIDES.

[SPECIALLY CONTRIBUTED.]

DURING recent years increasing employment has been found in metallurgical operations, notably in the extraction of gold, and in other chemical processes for cyanides, hence we find that considerable attention has also been paid to the introduction of new processes for their production at lower prices.

The cyanides are characterised by containing the radicle cyanogen, which is a compound of the two elements carbon and nitrogen in atomic proportions, this radicle is remarkable for its stability, for the fact that it can be obtained in the free condition which is an exceedingly rare feature of compound radicles, and the ease with which it combines with bases to form a large and numerous class of salts, viz :—the cyanides and the more notably extensive class of double or compound cyanides which can be made.

Carbon and nitrogen can be made to combine together directly, by passing a current of electricity between a pair of carbon poles in an atmosphere of nitrogen, when cyanogen is formed. Further it is found that whenever carbonaceous and nitrogenous matters are heated together, there is considerable tendency to form cyanogen in the shape of some cyanide, hence among the products of the distillation of shale and coal, &c., we find cyanides in larger or smaller quantities. Formerly these were neglected and thrown away, but now they are utilised. Thus from gas liquor a good deal of potassium ferrocyanide (yellow prussiate) is now made. In the short space we have at our disposal we intend to indicate some lines on which work has lately been carried on for the production of cyanides.

A mixture of 100 parts of caustic potash and $22\frac{1}{2}$ parts of fine carbon are intimately mixed and placed in a furnace, then a mixture of carbon monoxide gas and ammonia vapour is passed over the mixture, a reaction takes place between the carbon, carbon monoxide and ammonia resulting in the formation of hydrocyanic acid which is fixed by the potash as potassium cyanide. The residue in the furnace is lixiviated with water, and the solution evaporated down to recover the cyanide.

Carbon and nitrogen are capable of combining together directly, the temperature at which combination takes place cannot be very high, while it is evidently lower if an alkali be also present, for if a mixture of caustic potash or of potassium carbonate with carbon be made, and a current of air, or gases containing nitrogen, be passed over or through the mixture potassium cyanide is formed, which may be obtained from the furnace melt in the usual way. This reaction has attracted the attention of a good many chemical patentees who have played chiefly upon the manner in which the operation is carried out, with in many cases but few if any points of difference. In some cases a blast furnace is used, the materials are placed in the lower portion, air or air mixed with ammonia gas is blown in. The temperature in such a furnace gets high enough as to volatilise the potassium cyanide which is formed, and the latter is collected in suitable apparatus.

The gases from blast furnaces contain some cyanogen, this may be collected by passing the gases through scrubbers containing an alkaline liquor to absorb it. Then again the yield of cyanogen may be increased by charging the furnace with potash or alkali, and some animal nitrogenous matter which is decomposed, and yields a fair proportion of cyanogen.

When a mixture of carbon bisulphide, ammonia, and milk of lime is boiled together in a closed vessel there is formed calcium sulphocyanide, this is converted into sodium sulphocyanide by boiling with carbonate of soda, then this alkaline cyanide on being heated with quicklime and carbonaceous matter is converted into sodium cyanide.

The three elements, carbon, nitrogen, and potassium may be made to enter into direct combination, and this takes place at lower temperatures than is the case where a mixture of the hydroxide of the metal and carbon is used. The reaction may be carried on in an iron retort so arranged that it may be fed continuously with the alkali metal, and carbon in a fine state of division while nitrogen gas is passed through the retort. In place of using nitrogen, ammonia may be employed, and if this is so, the process may be modified so as to take place in two stages, the alkali metal is heated with anhydrous ammonia when sodium

or potassium amide is produced, this is then heated with carbon sodium or potassium cyanide is formed.

In the production of anthracene there is obtained a large proportion of residues which contain much carbazol, a nitrogenous compound. When this is heated with caustic potash it melts, and there is potassium carbazolate, which forms a mass below some uncondensed hydrocarbon bodies, and is readily separated therefrom. If not taken and heated to a bright red heat it is decomposed into potassium cyanide, and very finely divided carbon. There is a fairly good yield of potassium cyanide by this process.

Calcium carbide is formed by heating lime with carbon in an electric furnace. Of late it has become comparatively plentiful owing to the great development which has taken place in the industrial use of electricity and the application of the carbide to the production of acetylene on a fairly large scale. If this product be heated in a furnace in a current of nitrogen gas it is converted into potassium cyanide, from which potassium cyanide may be made by boiling solution of potassium carbonate. This property of calcium carbide forms the basis of a number of processes differing chiefly in the details which they are carried out.

A very interesting process is based upon the fact that when an electric spark is passed through a mixture of nitric oxide and acetylene hydrocyanic acid is formed, this may be converted into potassium cyanide by passing it through a solution of potassium carbonate. This process is scarcely likely to become a practical one although it is difficult to see many days of progress to prophesy with success on simply *a priori* grounds as to the practicability or otherwise of any chemical process.

Reference has been made to the fact that cyanogen can be obtained directly from carbon and nitrogen by means of electricity by nitrate of potash and fusing it, then passing a current of electricity between a pair of carbon electrodes when potassium cyanide is formed. By this process carbon with the nitrite probably a larger yield of cyanide will be obtained.

In the manufacture of sugar a large quantity of lyes and molasses are formed, these are subjected to destructive distillation for the recovery of the valuable constituents, if the gases from this distillation operation be conducted into a flue filled with bricks heated to a white heat, it has been found that cyanide of ammonia is formed, and this can be collected and utilised for the production of other cyanides.

MESSRS. FUERST BROS.—This firm has long been known for its photographic and fine chemical specialties. Their "Axe Brand" nitrate of silver and chloride of gold, manufactured by the Wood & Smelting Works, in London, are daily gaining in favour on account of their superiority, and so are also Hauff's developers "Amidol," "Metol," and "Glycin," and their "Axe Brand" pyrogallol acid. It will be of interest to know that besides selling Lumiere's well known ordinary or orthochromatic dry plates for photography and for colour printing, they are now also taking orders for Lumiere's "matograph," the only complete and best apparatus permitting the taking of negatives, the printing of positives, and projecting and photographing. Their tanning extracts, and particularly Quercetin extract, are gradually working their way into English tanneries, and the better understanding of this valuable material they are now issuing instructions on "How to Use It" in pamphlet form; any tanner who has a free copy of same on application. Quebracho extract not only improves the colour but gives great weight to the leather; it is supplied in solid paste, and liquid form. Last, but not least, we should mention that their nut oils and castor oils continue to maintain their reputation in this country, and that their shipments to the various English ports continue without interruption in spite of the great scarcity of seed in India, the firm being able to cope with any demand in consequence of the large stock with which the manufacturers were fortunately provided at the critical moment. Buyers should not fail to ask for their price list for heavy and fine chemicals.

PENNY POSTAGE WITH THE COLONIES.—Mr. Henniker Heaton, M.P., who is on his way back from Australia, brings certain communications overcoming the obstacles which have hitherto prevented the establishment of penny postage between Great Britain and the Colonies.

Our Book Shelf.

LUBRICATING OILS, FATS, AND GREASES. By George H. Hurst. 313 p.p. including Index. 65 Illustrations. London: Scott, Greenwood, and Co. 1896. 10s. 6d.

This work deals with lubricants and lubrication, attention being specially paid to the mineral or hydro-carbon oils which have so largely displaced fatty oils for this purpose. This must not be taken to mean that the vegetable and animal lubricants are neglected.

It is a practical book for practical men. As such it is naturally not intended for students, and for some reasons it is not altogether desirable that it should fall into their hands—certainly not until they have nearly reached maturity.

For the most part the text has been drawn from technical articles contributed by the author to the *Chemical Trade Journal* and the *Oil and Colourman's Journal*, which have been amplified and revised so as to render them fit for publication in book form.

Among what may be described as the better chapters are those on petroleum, lubricating greases, and vegetable and animal oils, certain sections of the latter being specially worthy of mention.

Chapter VI., on the testing and adulteration of oils, is not intended to be exhaustive, its scope and language being suited to most manufacturers' intellectual attainments. In the section on viscosity, however, there is no mention of Doolittle's instrument or Weiss's latest form of viscosimeter, omissions which are rather surprising seeing the book is otherwise thoroughly well brought up to date.

It is nicely illustrated and got up, and by reason of its well preserved specialisation is undoubtedly an acquisition to technical literature.

CHEMISTRY FOR ENGINEERS AND MANUFACTURERS. By B. Blount and A. G. Bloxam. Vol. II. 484 pp., with Index. 43 Illustrations. London: Charles Griffin and Co., Ltd. 1896. 16s.

The second volume of this work is devoted to the Chemistry of Manufacturing Processes, and apparently aims at affording a compendium of such information.

The authors explain that it is in no way intended to give detailed accounts of the processes, but on the contrary they only claim credit on the ground that it seeks to set forth dominant principles which have a tendency to be overlooked by the specialist, or lost in a labyrinth of detail.

In the face of this explanation it is only fair that the book should be judged accordingly instead of on its merits *per se*.

The range of subjects covered is naturally very extensive, and as a whole the majority are efficiently dealt with. This is the case with alkali, chlorine, and sulphuric acid manufacture. The section on the concentration of vitriol is, however, scarcely well balanced as regards its scope and treatment.

Lime and cement, brewing and distilling, pigments and paints, and minor chemical manufactures are treated as liberally as possible. Under oils, etc., the treatment of extraction processes is scanty.

About manures there is more concerning their properties than about the chemistry of their manufacture.

Among other good chapters, those on textiles, bleaching and colouring matters, dyeing, etc., should be mentioned.

Ten pages suffice for soap, candles, and glycerine, out of which three are devoted to soap, so that these manufacturing processes rank in importance on a level with the manufacture of explosives.

Bearing in mind its aim the book is certainly a good and useful one, constituting a practical guide for students by affording a clear conception of the numerous processes as a whole.

METALLIC ALLOYS. By W. T. Brant. New and Revised Edition. 427 pp. 134 Engravings. London: Sampson Low, Marston and Co., Ltd. 1896.

A new and enlarged edition of this well-known work will be welcome to all metallurgists. The principal additions have been made in the shape of new chapters on the more recent alloys and an extended treatment of the physical and chemical relations of metals.

It is not easy to specify what are the best portions of the work, for all of it is good. Without being invidious, however, reference may be

made more particularly to the chapters on the special properties of alloys, the preparation of alloys in general, and miscellaneous alloys.

Chapter XXII., though comparatively short, is an excellent one on solders and soldering.

The eleventh chapter on aluminium alloys will be found very interesting reading, as is also that on copper alloys and the numerous bronzes which are here dealt with.

The appendix also, on the principle of last but not least, contains much valuable information on the two interesting subjects of colouring alloys and recovering waste metals. The book is beautifully printed, and in every way a most worthy production.

SELECT METHODS IN INORGANIC QUANTITATIVE ANALYSIS. By B. W. Cheever. Third Edition. Revised and enlarged by F. C. Smith. 154 p.p. Illustrated. Edinburgh: W. F. Clay. 1896. 6s. net.

This book is in two parts. The first is intended for the use of beginners in the Quantitative Laboratory. It deals with many of those points which usually have to be picked up by experience, and the occasional advice of the professor or demonstrator. The rest of the first part is devoted to a number of exercises in gravimetric and volumetric analysis, and a more practical guide to the beginner in volumetric analysis we have never met before.

The exercises are well chosen, and though some of the methods will not give the most accurate results, they are well selected for their purpose.

The whole of this part constitutes a sound ground work for the embryo technical chemist. There are minor points, notably in reference to the valuation of bleaching powder and the sulphur in pyrites to which exception may be taken, but there are so many other redeeming features that it would be hypercritical to lay great stress on points that are certainly minor and more or less of a controversial nature.

The second part consists of a collection of select methods of analysis, mainly applicable to technical work, and so described that they are ruthlessly stripped of the usual text book adornments, for the sake of greater conciseness of expression and convenience of form.

Most of the methods refer to the analysis of ores or the separation of the heavy metals such as lead, copper iron and antimony, but there are also other sections. In the section on the estimation of manganese ores there is no mention of the volumetric oxalic acid method. The paragraphs on the analysis of iron and steel are good, as are also those on blast furnace slags, superphosphates, mineral phosphates, and coal. The same can scarcely be said concerning the section on water analysis as far as hardness and boiler waters are concerned; there is much most useful information, however, in the rest of this portion. In passing, mention should be made of the sections on the chlorination and cyanide assays for gold ores.

At the end, particulars are given for the preparation of the reagents required for the various processes, and these are referred to in the text by numbered letters. The whole is concluded by a well-compiled index.

Text books on Elementary Chemistry and Qualitative Analysis we have had till they have proved nauseating, but really good text books on quantitative analysis other than standard works like that of Fresenius can be counted on one hand. The present work is, moreover, not only a selection of methods, but bristling with hints, explanations and warnings that are worthy of dissemination. It fills a want and fills it well—so well that no student should be without it on entering the Quantitative Laboratory, and there many "teachers" who would benefit by a study of its contents.

CHEMICAL RECIPES. By the Atlas Chemical Co. Third Edition. 379 p.p. Sunderland. 1896.

We reviewed the first edition of this book only a few months ago, so that it is not surprising that the compilation of a third edition has already been reached.

There is not much which is fresh that can be said about the third edition of a book of this nature.

Its real value can only be tested by experience and the reception it meets with. On this latter score we should be inclined to think that it

was a work of real value. As we stated before the recipes of which we are able to judge, seemed good and above the level of most receipt books.

He would, however, be an expert indeed who could criticise all the recipes in this work, and, therefore, we could only speak of those sections with which we were familiar. In the light of later experience we see no reason for going back on our first impression, but we think some of the additions which have been made in this last edition do not add materially to the value of the book. This statement, however, does not diminish in any way the fact that as a recipe book this work was originally, and is now, in the main, an advance on former books of this type. 'As such it should be the first to receive the attention of those who are in want of manufacturing formulæ and such like.

QUANTITATIVE ESTIMATION OF SUGARS. By Dr. E. Wein. Translated (with notes) by W. Frew. 128 p.p. London: E. and F. N. Spon. 1896.

The great want of conformity in sugar estimation has long been a familiar defect. In the German tongue Dr. Wein's book has attained an enviable notoriety, so that a good translation is bound to be welcome and useful to all chemists and brewers, and this is what Dr. Frew has given us.

The introduction is full of information that is very helpful, especially the carefully and precisely rendered description of how to prepare the asbestos filter.

The bulk of the book consists of tables for showing the percentage of sugar direct from the Fehling test. The principal tables relate to the estimation of dextrose, milk sugar, invert sugar, and levulose. There is a chapter on the estimation of starch with a table, and also a table for estimating maltose.

SOCIETY OF CHEMICAL INDUSTRY. MANCHESTER SECTION.

THE third meeting of the session was held on Friday, 8th inst., at the rooms of the Chemical Club, Victoria Hotel, Mr. G. E. Davis presiding. There was a good attendance.

A short paper was first read on the "Rapid Valuation of Zinc Dust," by Mr. A. R. Wahl. The paper provoked a little discussion, in which the chief point was the reference to the fact that most methods in vogue do not enable the presence of iron dust as an adulterant to be detected. Otherwise the paper was not of great importance.

Mr. William Thomson then read the paper of the evening on the "Culvert Scheme for the Disposal of the Manchester Sewage Effluent." After reviewing the scheme, and contrasting the present state of the river Irwell with what it is desirable it should be, he went on to say that Sir Henry Roscoe had propounded the statement which had been taken up by the Mersey and Irwell Joint Committee that it was impossible to obtain a satisfactory effluent from the Manchester sewage by precipitating the suspended matter, and a large quantity of the soluble organic matter from it by means of sulphate of iron and lime, and with a view of making it satisfactory he advised the further treatment of the effluent by one of two methods of filtration, (a) artificial filters, or (b) land filtration. At this stage it came under the consideration of the City Surveyor, who treated the question from this point in an extremely able and practical manner. He calculated the cost of cinder or other similar filters, and the working of them, and took into account the liability of these filters to become choked, and the probable cost of cleansing and repairing for the one scheme; and he calculated the area of land required for filtration and the cost of working, &c., and further, taking into consideration the liability of the land to become inoperative he finally calculated the cost of a tunnel for taking the whole effluent into the tidal waters of the Mersey. The cost of the last scheme suggested by himself was the least of the three for dealing with the effluent, and it was undoubtedly the best, if the Mersey and Irwell Joint Committee would be satisfied with it. The crux of the whole matter, however, lay in the premise which led to the serious consideration by the Council of these three schemes, viz., that the sewage after being treated by precipitation and simple filtration was unfit to pass into the Irwell or the Ship Canal. The problem should be: Was it possible to treat sewage simply by chemical

and mechanical means so as to prevent it from throting sediment capable of putrefaction, and so that the organic soluble in the water would not themselves emit a putrid odour on being kept for two or three weeks in water. He believed it was possible to do this by one or other of the precipitation processes, and he thought this should be the criterion for the Ship Canal. Mersey and Irwell Joint Committee had taken the working chemical standard laid down by Roscoe more seriously, he thought, than was intended (Mr. Thomson) wished to be specially emphatic on was that the scheme now before the Corporation was to purify the Ship Canal in the best possible manner by chemical precipitation and subsidence or filtration, and it seemed that an experiment should not be made by allowing the effluent into the Ship Canal and to observe whether the smell of the weather was not greatly reduced or entirely removed. He determined directly by that means whether the effluent was fit for passing into the Ship Canal. The Manchester Corporation might improve the effluent by filtration through brickwork. Filtration would involve the purchase of about a ninth part of the area of Manchester for the purpose of treating the 26,000,000 fluid to be dealt with.

It seemed to him in carrying out such Acts of Parliament the method employed most successfully under the Alkali Act was that employed by the Joint Committee, *i.e.*, to allow the purification to develop slowly.

Dr. Pankhurst, who opened the discussion, contended that the Manchester Corporation had called half-a-dozen experts to the subject of the sewage effluent it would never have been in the difficult position in which it now found itself. It was that when a great public body was embarking upon a large work it did not supply itself in the first instance with what was the best place so easily at its service. He was satisfied that if the effluent were taken out of the canal and a well-established and recognized method of chemical precipitation applied in every instance, and of reasonable efficiency, the practical difficulty would be absolutely removed.

Dr. Hewitt (a member of the Mersey and Irwell Joint Committee) desired to correct a statement that had been made that the standard had been adopted by the Joint Committee. They were trying to induce people to adopt satisfactory methods. They had not adopted a hard and fast line; they had an immense amount of information, but though there were places in which they were producing satisfactory effluents, if not carefully watched, the results were not satisfactory.

Mr. J. Carter Bell complained that various companies were making experiments in regard to the sewage in Salford, but not get a definite answer from the Joint Committee as to whether the results were good enough or not. He still believed that lime water was preferred to use lime water. Its failure was due to its not being used. With sufficient lime water at the Salford Sewage Works he could produce an effluent that would satisfy the Ship Canal Joint Committee.

The Chairman believed the Local Government Board was responsible for the present deadlock in regard to the sewage. The Manchester scheme that was sanctioned some years ago never to have been sanctioned, and now they were suffering having to pay excessive rates. He did not think that the inspectors of the Joint Committee ought to be allowed to go to those whose works they were called upon to inspect, and some amendment of the Act of Parliament in this respect would be better.

Dr. Hewitt assured the members that the greatest pressure was brought upon the Joint Committee by manufacturers and ask them to allow their advisers to give as much information as they could. The reason the committee had placed the information in the hands of Sir Henry Roscoe at the service of the public was simply of bringing about a change for the better. It had been in the interests of the public and at the request of the public.

The Chairman said this view might do for the committee but not seem to satisfy outsiders. Mr. Thomson briefly replied.

After usual votes of thanks the meeting then ended.

TABLES FOR USE IN AGRICULTURAL ANALYSIS.

[ALL RIGHTS RESERVED].

[SPECIALLY COMPILED AND CONTRIBUTED].

IN commercial analysis, everything that reduces the time which must elapse between receiving a sample for analysis, and obtaining the analytical results is of great importance. Filtration may be accelerated by the use of the filter pump, other manipulative details may be expedited by the judicious application of "gumption" and manual dexterity, and thus up to the end of a final weighing or titration a great economy of time may be effected.

But many a work's chemist can tell how, after doing all this, he has had to hurry through the remaining calculation, probably with his employer at his elbow urging him on, thus obtaining the result at a great risk of error in calculation, after the actual analysis has been correctly performed.

It was with a view to avoiding this risk, and the useless labour of performing the same calculation repeatedly, that the following tables were constructed, whereby the percentage of nitrogen, ammonia, or albuminoids could be read off at sight from the number of c.c. of standard acid used, or percentage of phosphate, potash, sulphate, or muriate of potash could be read off at sight from grammes of precipitate obtained, and this with sufficient accuracy for commercial purposes.

TABLE FOR NITROGEN AND AMMONIA (USING 1 GRM. SAMPLE)

CC. DECI-NORMAL	0		1		2		3		4		5		6		7		8		9	
	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃
10	1.40	1.70	1.41	1.72	1.43	1.73	1.44	1.75	1.45	1.77	1.47	1.78	1.48	1.80	1.50	1.82	1.51	1.83	1.53	1.85
11	1.54	1.87	1.55	1.89	1.57	1.90	1.58	1.92	1.59	1.94	1.61	1.95	1.62	1.97	1.64	1.99	1.65	2.00	1.66	2.02
12	1.68	2.04	1.69	2.06	1.71	2.07	1.72	2.09	1.73	2.11	1.75	2.12	1.76	2.14	1.78	2.16	1.79	2.17	1.80	2.19
13	1.82	2.21	1.83	2.23	1.85	2.24	1.86	2.26	1.87	2.28	1.89	2.29	1.90	2.31	1.92	2.33	1.93	2.34	1.94	2.36
14	1.96	2.38	1.97	2.40	1.99	2.41	2.00	2.43	2.01	2.45	2.03	2.46	2.04	2.48	2.06	2.50	2.07	2.51	2.08	2.53
15	2.10	2.55	2.11	2.57	2.13	2.58	2.14	2.60	2.15	2.62	2.17	2.63	2.18	2.65	2.20	2.67	2.21	2.68	2.23	2.70
16	2.24	2.72	2.25	2.74	2.27	2.75	2.28	2.77	2.29	2.79	2.31	2.80	2.32	2.82	2.34	2.84	2.35	2.85	2.37	2.87
17	2.38	2.89	2.39	2.91	2.41	2.92	2.42	2.94	2.43	2.96	2.45	2.97	2.46	2.99	2.48	3.01	2.49	3.02	2.51	3.04
18	2.52	3.06	2.53	3.08	2.55	3.09	2.56	3.11	2.57	3.13	2.59	3.14	2.60	3.16	2.62	3.18	2.63	3.19	2.65	3.21
19	2.66	3.23	2.67	3.25	2.69	3.26	2.70	3.28	2.71	3.30	2.73	3.31	2.74	3.33	2.76	3.35	2.77	3.36	2.79	3.38
20	2.80	3.40	2.81	3.42	2.83	3.43	2.84	3.45	2.85	3.47	2.87	3.48	2.88	3.50	2.90	3.52	2.91	3.53	2.93	3.55
21	2.94	3.57	2.95	3.59	2.97	3.60	2.98	3.62	2.99	3.64	3.01	3.65	3.02	3.67	3.04	3.69	3.05	3.70	3.07	3.72
22	3.08	3.74	3.09	3.76	3.11	3.77	3.12	3.79	3.13	3.81	3.15	3.82	3.16	3.84	3.18	3.86	3.19	3.87	3.21	3.89
23	3.22	3.91	3.23	3.93	3.25	3.94	3.26	3.96	3.27	3.98	3.29	3.99	3.30	4.01	3.32	4.03	3.33	4.04	3.35	4.06
24	3.36	4.08	3.37	4.10	3.39	4.11	3.40	4.13	3.41	4.15	3.43	4.16	3.44	4.18	3.46	4.20	3.47	4.21	3.49	4.23
25	3.50	4.25	3.51	4.27	3.53	4.28	3.54	4.30	3.55	4.32	3.57	4.33	3.58	4.35	3.60	4.37	3.61	4.38	3.63	4.40
26	3.64	4.42	3.65	4.44	3.67	4.45	3.68	4.47	3.69	4.49	3.71	4.50	3.72	4.52	3.74	4.54	3.75	4.55	3.77	4.57
27	3.78	4.59	3.79	4.61	3.81	4.62	3.82	4.64	3.83	4.66	3.85	4.67	3.86	4.69	3.88	4.71	3.89	4.72	3.91	4.74
28	3.92	4.76	3.93	4.78	3.95	4.79	3.96	4.81	3.97	4.83	3.99	4.84	4.00	4.86	4.02	4.88	4.03	4.89	4.05	4.91
29	4.06	4.93	4.07	4.95	4.09	4.96	4.10	4.98	4.11	5.00	4.13	5.01	4.14	5.03	4.16	5.05	4.17	5.06	4.19	5.08
30	4.20	5.10	4.21	5.12	4.23	5.13	4.24	5.15	4.26	5.17	4.27	5.18	4.28	5.20	4.30	5.22	4.31	5.23	4.33	5.25
31	4.34	5.27	4.35	5.29	4.37	5.30	4.38	5.32	4.39	5.34	4.41	5.35	4.42	5.37	4.44	5.39	4.45	5.40	4.47	5.42
32	4.48	5.44	4.49	5.46	4.51	5.47	4.52	5.49	4.53	5.51	4.55	5.52	4.56	5.54	4.58	5.56	4.59	5.57	4.61	5.59
33	4.62	5.61	4.63	5.63	4.65	5.64	4.66	5.66	4.67	5.68	4.69	5.69	4.70	5.71	4.72	5.73	4.73	5.74	4.75	5.76
34	4.76	5.78	4.77	5.80	4.79	5.81	4.80	5.83	4.81	5.85	4.83	5.86	4.84	5.88	4.86	5.90	4.87	5.91	4.89	5.93
35	4.90	5.95	4.91	5.97	4.93	5.98	4.94	6.00	4.95	6.02	4.97	6.03	4.98	6.05	5.00	6.07	5.01	6.08	5.03	6.10
36	5.04	6.12	5.05	6.14	5.07	6.15	5.08	6.17	5.09	6.19	5.11	6.20	5.12	6.22	5.14	6.24	5.15	6.25	5.17	6.27
37	5.18	6.29	5.19	6.31	5.21	6.32	5.22	6.34	5.23	6.36	5.25	6.37	5.26	6.39	5.28	6.41	5.29	6.42	5.31	6.44
38	5.32	6.46	5.33	6.48	5.35	6.49	5.36	6.51	5.37	6.53	5.39	6.54	5.40	6.56	5.42	6.58	5.43	6.59	5.45	6.61
39	5.46	6.63	5.47	6.65	5.49	6.66	5.50	6.68	5.51	6.70	5.53	6.71	5.54	6.73	5.56	6.75	5.57	6.76	5.59	6.78
40	5.60	6.80	5.61	6.82	5.63	6.83	5.64	6.85	5.65	6.87	5.67	6.88	5.68	6.90	5.70	6.92	5.71	6.93	5.73	6.95
41	5.74	6.97	5.75	6.99	5.77	7.00	5.78	7.02	5.79	7.04	5.81	7.05	5.82	7.07	5.84	7.09	5.85	7.10	5.87	7.12
42	5.88	7.14	5.89	7.16	5.91	7.17	5.92	7.19	5.93	7.21	5.95	7.22	5.96	7.24	5.98	7.26	5.99	7.27	6.01	7.29
43	6.02	7.31	6.03	7.33	6.05	7.34	6.06	7.36	6.07	7.38	6.09	7.39	6.10	7.41	6.12	7.43	6.13	7.44	6.15	7.46
44	6.16	7.48	6.17	7.50	6.19	7.51	6.20	7.53	6.21	7.55	6.23	7.56	6.24	7.58	6.26	7.60	6.27	7.61	6.29	7.63
45	6.30	7.65	6.31	7.67	6.33	7.68	6.34	7.70	6.35	7.72	6.37	7.73	6.38	7.75	6.40	7.77	6.41	7.78	6.43	7.80
46	6.44	7.82	6.45	7.84	6.47	7.85	6.48	7.87	6.49	7.89	6.51	7.90	6.52	7.92	6.54	7.94	6.55	7.95	6.57	7.97
47	6.58	7.99	6.59	8.01	6.61	8.02	6.62	8.04	6.63	8.06	6.65	8.07	6.66	8.09	6.68	8.11	6.69	8.12	6.71	8.14
48	6.72	8.16	6.73	8.18	6.75	8.19	6.76	8.21	6.77	8.23	6.79	8.24	6.80	8.26	6.82	8.28	6.83	8.29	6.85	8.31
49	6.86	8.33	6.87	8.35	6.89	8.36	6.90	8.38	6.91	8.40	6.93	8.41	6.94	8.43	6.96	8.45	6.97	8.46	6.99	8.48
50	7.00	8.50	7.01	8.52	7.03	8.53	7.04	8.55	7.05	8.57	7.07	8.58	7.08	8.60	7.10	8.62	7.11	8.63	7.13	8.65
51	7.14	8.67	7.15	8.69	7.17	8.70	7.18	8.72	7.19	8.74	7.21	8.75	7.22	8.77	7.24	8.79	7.25	8.80	7.27	8.82
52	7.28	8.84	7.29	8.86	7.31	8.87	7.32	8.89	7.33	8.91	7.35	8.92	7.36	8.94	7.38	8.96	7.39	8.97	7.41	8.99
53	7.42	9.01	7.43	9.03	7.45	9.05	7.46	9.06	7.47	9.08	7.49	9.09	7.50	9.11	7.52	9.13	7.53	9.14	7.55	9.16
54	7.56	9.18	7.57	9.20	7.59	9.21	7.60	9.23	7.61	9.25	7.63	9.26	7.64	9.28	7.66	9.30	7.67	9.31	7.69	9.33
55	7.70	9.35	7.71	9.37	7.73	9.38	7.74	9.40	7.75	9.42	7.77	9.43	7.78	9.45	7.80	9.47	7.81	9.48	7.83	9.50
56	7.84	9.52	7.85	9.54	7.87	9.55	7.88	9.57	7.89	9.59	7.91	9.60	7.92	9.62	7.94	9.64	7.95	9.65	7.97	9.67
57	7.98	9.69	7.99	9.71	8.01	9.72	8.02	9.74	8.03	9.76	8.05	9.77	8.06	9.79	8.08	9.81	8.09	9.82	8.11	9.84

NITROGEN TABLES.

Example:—One gramme of fish meal was digested in 20 c.c. of concentrated sulphuric acid which contained 40% of pure sulphate of potash. The digestion was continued until the liquid was quite clear and colourless, the liquid cooled, and transferred to the distilling flask, and distilled with excess of caustic soda. The evolved ammonia was absorbed in 20 c.c. of semi-normal sulphuric acid (equal 100 c.c. deci-normal). The excess of sulphuric acid was then titrated with deci-normal sodium hydrate, of which 45.4 c.c. were required. Then 100 c.c. deci-normal acid minus 45.4 c.c. sodium hydrate = 54.6 c.c. deci-normal acid neutralised by the nitrogen of the fish meal. Now to use the table.

In the extreme left-hand column headed "c.c. Deci-normal" find 54 c.c., then run the eye along the horizontal line of figures until the column headed '6' is reached, where we find 7.64% nitrogen equal to 9.28% ammonia.

Kjeldahl's method has been given above, but the titration after a combustion can obviously be similarly referred to the table.

If per cent. albuminoids had been required as in the case of decorticated cotton seed meal for instance, a similar reference to 54.6 c.c. in the table for albuminoids would have shown us 47.77% albuminoids. The table for albumoids will be given in the next issue.

TABLE FOR NITROGEN AND AMMONIA (USING 1 GRM. SAMPLE).—Continued.

CC. DECI. NORMAL.	0		1		2		3		4		5		6		7		8		%
	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	%N	NH ₃	
58	8.12	9.86	8.13	9.88	8.15	9.89	8.16	9.91	8.17	9.93	8.19	9.94	8.20	9.96	8.22	9.98	8.23	9.99	8.2
59	8.26	10.03	8.27	10.05	8.29	10.06	8.30	10.08	8.31	10.10	8.33	10.11	8.34	10.13	8.36	10.15	8.37	10.16	8.3
60	8.40	10.20	8.41	10.22	8.43	10.23	8.44	10.25	8.45	10.27	8.47	10.28	8.48	10.30	8.50	10.32	8.51	10.33	8.5
61	8.54	10.37	8.55	10.39	8.57	10.40	8.58	10.42	8.59	10.44	8.61	10.45	8.62	10.47	8.64	10.49	8.65	10.50	8.6
62	8.68	10.54	8.69	10.56	8.71	10.57	8.72	10.59	8.73	10.61	8.75	10.62	8.76	10.64	8.78	10.66	8.79	10.67	8.8
63	8.82	10.71	8.83	10.73	8.85	10.74	8.86	10.76	8.87	10.78	8.89	10.79	8.90	10.81	8.92	10.83	8.93	10.84	8.9
64	8.96	10.88	8.97	10.90	8.99	10.91	9.00	10.93	9.01	10.95	9.03	10.96	9.04	10.98	9.06	11.00	9.07	11.01	9.0
65	9.10	11.05	9.11	11.07	9.13	11.08	9.14	11.10	9.15	11.12	9.17	11.13	9.18	11.15	9.20	11.17	9.21	11.18	9.2
66	9.24	11.22	9.25	11.24	9.27	11.25	9.28	11.27	9.29	11.29	9.31	11.30	9.32	11.32	9.34	11.34	9.35	11.35	9.3
67	9.38	11.39	9.39	11.41	9.41	11.42	9.42	11.44	9.43	11.46	9.49	11.47	9.46	11.49	9.48	11.51	9.49	11.52	9.5
68	9.52	11.56	9.53	11.58	9.55	11.59	9.55	11.61	9.57	11.63	9.59	11.64	9.60	11.66	9.62	11.68	9.63	11.69	9.6
69	9.66	11.73	9.67	11.75	9.69	11.76	9.70	11.78	9.71	11.80	9.73	11.81	9.74	11.83	9.76	11.85	9.77	11.86	9.7
70	9.80	11.90	9.81	11.92	9.83	11.93	9.84	11.95	9.85	11.97	9.87	11.98	9.90	12.02	9.90	12.02	9.91	12.03	9.9
71	9.94	12.07	9.95	12.09	9.97	12.10	9.98	12.12	9.99	12.14	10.01	12.15	10.04	12.19	10.04	12.19	10.05	12.20	10.0
72	10.08	12.24	10.09	12.26	10.11	12.27	10.12	12.29	10.13	12.31	10.15	12.32	10.18	12.36	10.18	12.36	10.19	12.37	10.2
73	10.22	12.41	10.23	12.43	10.25	12.44	10.26	12.46	10.27	12.48	10.29	12.49	10.32	12.53	10.32	12.53	10.33	12.54	10.3
74	10.36	12.58	10.37	12.60	10.39	12.61	10.40	12.63	10.41	12.65	10.43	12.66	10.46	12.70	10.46	12.70	10.47	12.71	10.4
75	10.50	12.75	10.51	12.77	10.53	12.78	10.54	12.80	10.55	12.82	10.57	12.83	10.60	12.87	10.60	12.87	10.61	12.88	10.6
76	10.64	12.92	10.65	12.94	10.67	12.95	10.68	12.97	10.69	12.99	10.71	13.00	10.74	13.04	10.74	13.04	10.75	13.05	10.7
77	10.78	13.09	10.79	13.11	10.81	13.12	10.82	13.14	10.83	13.16	10.85	13.17	10.88	13.21	10.88	13.21	10.89	13.22	10.9
78	10.92	13.26	10.93	13.28	10.95	13.29	10.96	13.31	10.97	13.33	10.99	13.34	11.02	13.38	11.02	13.38	11.03	13.39	11.0
79	11.06	13.43	11.07	13.45	11.09	13.46	11.10	13.48	11.11	13.50	11.13	13.51	11.16	13.55	11.16	13.55	11.17	13.56	11.1
80	11.20	13.60	11.21	13.62	11.23	13.63	11.24	13.65	11.25	13.67	11.27	13.68	11.30	13.72	11.30	13.72	11.31	13.73	11.3

(To be Continued.)

MANURE MATERIALS IN 1896.

THE year just closed was a disappointing one to traders in manure material and to manufacturers alike. It was hoped that the spring season would bring with it a turn in the tide, but stocks proved more than sufficient to meet all demands, and we can now only look to the coming season for the long expected improvement. One satisfactory feature is that United Kingdom manufacturers must by this time have worked off most of their high-priced phosphate rock contracts, so that they may now enter the competition in the manure trade from the starting point of low-priced material.

Mineral Phosphates.—It was thought that low water mark had been reached in 1895, and that there was no margin for reduction either in cost of production or in freights. It turned out, however, that the irreducible minimum had not been reached in freights, though it had been in cost of production, and any fluctuation throughout the year was due to fluctuation in freights. The quotation for 75/80% Florida rock at the close of 1895 was 6¼d. per unit, c.i.f. to good U.K. ports, and although business was done on the Continent in the early part of the year at the equivalent of 6¼d., very little interest was manifested by United Kingdom buyers. Indeed throughout the year there was comparatively little buying of high grade rock for the U.K., partly owing to manufacturers being fairly well stocked, and no doubt partly owing to falling off in demand for manures requiring a high grade phosphate. Continent and Baltic, however, bought freely from time to time, and the bulk of the Florida shipments in 1896 went in that direction. The quotation c.i.f. to U.K. drooped to 6d. per unit in March, and as low as 5¼d. was reported accepted in May, though the quotation remained 6d. per unit. The hardening freight market in September occasioned an advance to 6¼d. in the quotation, but little came of it, except to Continent and Baltic where *bear* speculative contracts had to be covered. At the close of the year 6d. unit was the nearest market price. South Carolina and 58/63% Algerian rocks, having been subject to the same influences, followed the course of high grade rock, starting at 5¼d. per unit c.i.f. to U.K. the quotation became 5¼d. in May, and 5d. per unit in June. In September the price again became 5½d., but drooped to 5¼d. per unit in October, and to 5d. in December. Algerian 63/70% ruled throughout at ¼d. per unit above 58/63%.

River Plate Bones.—Prices were never able to make any great headway owing to cheap nitrate of soda and cheaper sulphate of ammonia, although by the scarcity of cargoes there was an improvement in values

towards the close of the year. The quotation in January 1896 was £3. 16s. 3d. per ton, but in February £3. 15s. was accepted, remained the value until the end of March. Until late May ideas for autumn shipment were ambitious, but at that time £3. would have been accepted. In September there were £3. 12s. 6d. per ton, and even £3. 11s. 3d. was reported. Later when the fact of scarcity of cargoes began to be realised by buyers, there was an improvement, and in November several changed hands at £3. 17s. 6d. per ton. At the close of 1896 £3. 18s. 9d. would have been paid for handy sizes.

Crushed Kurrachee Bones were taken mostly for the Continent where higher prices were obtainable than in the United Kingdom. From January to May the price fluctuated between £4. and £3. 10s. per ton, supplies being at no time very plentiful. In August, 1896, when the Continent was off the market, there were sellers at £3. 10s. per ton, and this continued to be the quotation until October 1896, £3. 17s. 6d. was required owing to advanced freight. £4. per ton was the closing quotation.

East Indian Bone Meal.—Starting at £3. 17s. 6d. per ton of ordinary quality, the market drooped to £3. 15s. in February, improved again in March to £3. 16s. 3d. per ton and then £3. 17s. Towards the end of May, supplies being ample and demand very satisfactory, the price fell to £3. 12s. 6d. per ton on spot and £3. 10s. for shipment. In June sellers became very firm at £4. per ton for autumn shipments, but buyers did not respond. In July, however, the spot market became weaker, and sellers who were holding for £4. per ton accepted £3. 15s., which was still the quotation for shipment. The upward movement in freights made itself felt in October, and in November a large business was done at £3. 18s. per ton, up to £3. 18s. 9d. for shipment; a good deal of the business being also cleared out at the same prices. Closing value was £3. 18s. per ton.

Sulphate of Ammonia.—The year opened quietly. Up to the middle of the year there was an increase of some 15,000 tons in the export compared with those in same period in 1895, but from June they were only on about the same level as those in the second half of 1895. Nevertheless some inroad has been made into the stock in the twelve months ago. Moreover consumers have wakened up and are glad to buy at a moderate premium for delivery over spring.

Miscellaneous Material.—There was little doing all the year in dried blood, which was quoted 7s. 9d. per unit, f.o.b. at the end of January, and 7s. per unit at the close of the year.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols have opened the year well, being firm as regards price and position, 90's are worth about 3s. 4d. to 3s. 6d. for prompt, and 50/90's 3s., the same price applying in the latter case for February-June delivery. Other tar products are for the most part firm, without any material change in prices. Crude carbolic acid being quoted 2s. 1d. for 60%, crystals (40%) 7½d. Crude naphtha 1s. 1d., and solvent 1s. 7d. Pitch is variable at 25s. to 28s., f.o.b. East Coast. Anthracene and creosote unaltered.

Sulphate of ammonia is decidedly firmer, for both prompt and forward. London outside makes now stand at £8. 2s. 6d. for prompt, Liverpool £8., the same figure holding good for Hull and Leith. Forward, Beckton £8. and Leith £8. 5s.

REPORT ON MANURE MATERIAL.

There is more inquiry and a moderate amount of business is doing, but rather in retail than in heavy lines. The position of phosphate rock is unchanged—sales of 75/80% Florida have been made to the Baltic for summer shipment at 6¼d. per unit, but United Kingdom buyers do not evince any interest, although under 6¼d. per unit would probably be accepted. For South Carolina River rock and for 58/63% Algerian 5d. per unit would likely be business, and for 63/70% Algerian 5¼d. per unit. There would still be buyers of River Plate bones at £3. 18s. 9d. per ton if anything of handy size and sufficiently early shipment offered. Bombay bone meal rather hangs fire, and £3. 17s. 6d. per ton would be accepted either on spot or to arrive. There has been more doing in due cargoes, and up to 7s. 10½d. per cwt. for ordinary quality has been paid. On spot fine quality is held for 8s. per cwt., although low refraction may be had at 7s. 10½d. per cwt.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade business continues fairly brisk. Bleaching powder is in good demand for export at £6. 15s. f.o.b., and £6. 10s., softwoods, f.o.r., makers' works. Ammonia alkali, £3. 7s. 6d. per ton, f.o.r., but much lower prices continue to be taken for export. Caustic soda is in good request for prompt or early shipment, and current quotations are:—F.o.b. Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. per ton, 10-ton lots. Chlorates unchanged for prompt and early delivery at 4¼d. for potash and 5¼d. for soda. In sulphate of copper the price has advanced, and, with considerable inquiry, is firm at £18. Recovered sulphur, £4. 12s. 6d. to £4. 15s., f.o.r., with a firm tendency. Saltcake steady at 20s. in bulk, f.o.r. works, and 30s., bags, f.o.b. Liverpool. For vitriol and muriatic acids there is a steady demand at full prices. Sulphite and hyposulphite of soda are without change. Chloride of calcium, 45s. nett, f.o.b. Liverpool. For borax and boracic acids prices are weak, with supply in excess of demand. Nitrate of soda steady at 7s. 10½d., f.o.r. For white powdered arsenic there is a firm market, at £23. 15s. to £24. for best brands, but odd lots offering slightly under these prices. Brown acetate of lime rather dearer, and firm at £4. 15s., c.i.f., and £5. delivered Manchester district; grey acetate, £8. to £8. 5s. per ton, c.i.f. Brown and grey sugar of lead in only moderate demand, and prices unaltered. Acetate of soda unchanged at £14. 5s., c.i.f. in quantity. In potash, caustic and carbonate, there is a fair amount of business doing, at full prices, for prompt and early spring delivery. Yellow prussiate of potash weaker, at 5d. to 5½d. per lb. Cyanide, also in sympathy, at 11d. per lb. For aniline oil and salt the market is rather firmer, but no quotable change during the past week. In muriate of ammonia there is still a tendency to lower prices; quotations are £19. 10s. to £20. in usual districts. Oxalic acid firm at syndicate price of 3½d. to 3¾d. per lb., according to quantity. Green copperas in active demand, and prices are firmer.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is only in feeble demand, which fact, coupled with the scanty offerings, has kept business very quiet, there being no transactions of much importance to report. Olive is steady and more inquired for, spot business in Spanish being fairly brisk at full prices. Linseed is about the same, price for Liverpool makes in export casks still being 16s. 3d. to 17s. 6d. per cwt. according to quality, with a quiet market. Cottonseed has settled down firm at last week's quotations, viz.—15s. 9d. to 16s. 3d. for Liverpool refined; American steady. Castor oil, after a long spell of firm prices and fairly good demand, is now rather stagnant, with sellers at 2¾d. for good seconds Calcutta and first pressure French. Tallow is firm, and well inquired for, South American for near at hand or landed is moving freely at 21s 4½d. per cwt. Resin is steady, with a fairly good demand; prices are unaltered. Spirits of turpentine are being firmly held for 21s. per cwt. Petroleum is unchanged from last quotations.

COLOURS. Prices are steady, and practically without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £15, Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 90s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 65s. Umber: 40s. to 45s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 48s. 8½d., Middlesbrough 41s. 8½d. cash, and hematite 51s. 7d. Copper, easier: Chili bars, G. O. B.'s and G. M. B.'s, closed at £50. 1s. 3d. to £50. 6s. 3d. cash, and £50. 11s. 3d. to £50. 16s. 3d. three months. Tin, weaker: Straits closed at £59. 1s. 3d. to £59. 11s. 3d. cash, and £59. 17s. 3d. to £60. 7s. 6d. three months; Australian, £60. 13s. 9d.; English ingots, £63. 10s. to £64. Lead: Spanish, £11. 13s. 9d.; English, £11. 15s. to £11. 17s. 6d. Silesian spelter, ordinary, £17. 17s. 6d. Nickel, 1s. 2½d. Antimony, £30. 10s. to £31. 10s. Quicksilver: First hands, £6. 12s. 6d.; second hands, £6. 11s. 6d. Copper shares, quiet: Cape, 2½ to 2½; Copiapo, 1½ to 2½; Libiola, 1½ to 1½; Mason and Barry, 2¼ to 2½; Rio Tinto, 26½ to 26½; Tharsis, 6¼ to 6½.

GLASGOW, TUESDAY.—Market strong, with a good business. Scotch done at 48s. 8½d., 48s. 8d., and 48s. 0d. cash; also at 48s. 11½d. one month; buyers, 48s. 8½d. cash; sellers, 48s. 9d. Cleveland done at 41s. 9d. cash, and 41s. 11½d. to 42s. one month; buyers, 41s. 8½d. cash. Cumberland hematite done at 51s. 7½d. cash; also at 51s. 10½d., 51s. 10d., 51s. 11d., and 51s. 10d. one month; buyers, 51s. 7d. cash; sellers, 51s. 7½d. Middlesbrough hematite done at 50s. 11½d. to 51s. one month; buyers, 50s. 8d. cash.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are very dull, and prices remain practically unaltered. Soda crystals, £2. 2s. 6d. per ton, gross weight locally. Caustic soda, 76/77%, £9.; 70%, £7. 7s. 6d. to £7. 10s. per ton. Sulphur scarce at £5. per ton.

Bleaching powder, softs, £6. 15s. per ton, nett; hards, £7. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton.

Germany, 13	Prop. Bull Wf.	E. Indies, 5 chts.	Binny & Co.	Germany, 94	Lawe's Cheml.	Sulphur—	
Zanzibar, 50	L. & I. D. Jt. Co.	" 13	Arbuthnot, Latham	Belgium, 16	Manure Co.	Italy, 20 t.	J. Greig
" 3	F. Rey & Co.	" 9	& Co.	E. Indies, 570	J. Kitchen, Ld.	" 300	Brandram Brs. & Co.
Madagascar, 15	Procter Brs.	" 12	Credit Lyonnais	" 28	A. Hunter & Co.	" 3	P. Hecker & Co.
B. Honduras, 3	Belize Est. & Prod.	" 21	Eales, Prince	" 28	P. & O. S. N. Co.	" 26	Pigou, Wilks, & Co.
Germany, 13	H. Kiver & Co.	" 21	& Co.	Metallic Oxide—		Sulphuric Acid—	
E. London, 10	Hammond & Co.	" 1 bx.	E. Bower & Co.	Germany, 2 cks.	Brit. Anti-Fouling	Holland, 6 cs.	J. Owen
Madagascar, 1,400		" 410	Montgomerie	Germany, 7 dms.	Compo Co.	Talc—	
Belgium, 1	Société John Cockerill	" 47	P. Macfadyen	" 9	Sutton, Carden,	France, 120	Blackwell & Co.
Castor Oil—		" 85	& Co.	" 19	& Co.	" 120	Blackwell, Sons, & Co.
France, 170 brls.	J. T. Morton	" 4	L. & I. D. Jt. Co.	" 19	Tingle, Jacobs, & Co.	" 270	L. & I. D. Jt. Co.
Italy, 50 cs.	Stebbing & Co.	" 3	Croysdale & Co.	Mica—		Tar—	
France, 30	Beresford & Co.	" 3	Walker, Munsie	E. Indies, 1,100	W. Bandt, Son, & Co.	Jersey, 23,500 g.	Burt, Boulton, & Co.
Italy, 38	Ross & Deering	" 57	& Co.	" 540	E. Davis & Co.	France, 91 brls.	Burnett Brs. & Sons
E. Indies, 32 cks.	Cayzer, Irvine & Co.	" 107	A. B. Curtis & Co.	U. States, 200	W. Davis	Tartaric Acid—	
" 120	Perkins & Homer	" 20	Parsons & Keith	E. Indies, 1,994	W. M. Smith & Sons	Germany, 1 ck.	Domeier & Co.
" 50 cs.	Barron, Harveys	" 31	J. Hatton Hall	Minium—		Holland, 9	22 pks. B. & F. Wf. Co.
Italy, 25	& Co.	" 85	& Co.	Belgium, 20 kgs.	Union L. Co.	Ultramarine—	
Belgium, 29 brls.	R. G. Hall & Co.	Logwood		Molasses—		Belgium, 7 pks.	Leach & Co.
France, 27	J. Greig	B. Honduras, 172 t.	W. Shelcott	Egypt, 200 cks.	1,600 c. Middleton's	Germany, 31 cs.	Steinhoff, Sons, & Co.
" 158	C. Windchuecl & Co.	" 10	L. & I. D. Jt. Co.	U. States, 200 pks.	1,170 R. G. Hall	Holland, 5	J. Barber & Co.
" 48	Mordaunt Brs.	" 14	Ben-kendorff	" 6	18 Girard Brs.	" 25 pks.	Hernu, Peron, & Co.
Italy, 25 cs.	Hodgkinson & Co.	Myrabolams		" 550	2,475 Deering & Robottom	Varnish—	
" 10	Fellowes, Morton & Co.	E. Indies, 1,183 bgs.	A. B. Curtis & Co.	Naptha—		Belgium, 11 pks.	Société John Cockerill
Caustic Potash—		Singapore, 2,000 pkts.	P. & O. S. N. Co.	Holland, 22 dms.	Burt, Boulton, & Co.	U. States, 17	Allan Brs. & Co.
France, 65 drs.	W. E. Cole	E. Indies, 620	Baxter & Hoare	Ochre—		Germany, 5	L. & I. D. Jt. Co.
Germany, 41	J. M. Steel & Co.	" 200	J. Greaves	U. States, 6 brls.	binney & Smith	" 17	Schenker & Co.
France, 40	J. Knight & Sons	Shumac		Holland, 17 pks.	5 cs. Phillips & Graves	U. States, 6	O'Hara, Matthews, & Co.
Chemicals (otherwise undescribed)		Italy, 135 bgs.	Hicks, Nash & Co.	France, 28 sks.	W. Harrison & Co.	" 4	Wilkinson, Heywood, & Co.
Holland, 1,105	B. & F. Wf. Co.	" 200	T. Barter & Co.	Spain, 78	Silicate Paint Co.	Germany, 1	H. Lambert
S. Russia, 12	Schenker & Co.	" 1,000	Beresford & Co.	France, 4 cks.	O'Hara & Hoar	U. States, 6	Dawson Brs.
U. States, 659	W. Smith	" 50	Pickford & Co.	Oxalic Acid—		Verdigris—	
Holland, 14	Little & Johnston	" 3,660	Ross & Deering	Belgium, 5 pks.	R. W. Greeff & Co.	France, 4 cks.	Skilbeck Brs.
" 20	A. C. Lloyd	" 50	L. & N. W. Rly.	Phosphate Rock—		White Lead—	
Germany, 14	H. Lambert	" 500	Harris Brs. & Co.	Belgium, 205 t.	J. Gibbs, Ld.	Belgium, 96 cks.	Leach & Co.
" 1,056	A. & M. Zimmermann	" 100	McDougall & Bonifron	Pitch—		" 20	Union L. Co.
France, 100	J. Barber & Co.	" 473 pks.	Clark, Gray & Co.	N. Russia, 25 pks.	Lunham & Moore	Holland, 57	T. & W. Farmiloe
Sweden, 13	Hughes, Chemery & Co.	" 100	H. Johnson & Sons	" 100 brl.	J. Greig	France, 18	J. Watt & Son
Germany, 25	Craven & Co.	" 250	G. R. Haller	Plumbago—		Holland, 20	E. J. Diggins
Holland, 12	A. & M. Zimmermann	" 42	Soundy & Sons	Ceylon, 414 cks.	Vokins & Co.	" 20	A. & M. Zimmermann
Belgium, 15	O. Scholzig	Tanners' Bark		" 340 J. Thredder, Son, & Co.		Belgium, 20	Perkins & Homer
Germany, 3	L. & I. D. Jt. Co.	Belgium, 10 t.	Leach & Co.	" 24 bils.	R. G. Hall & Co.	Germany, 12 cs.	Grosscurth & Luboldt
" 21	Becker & Wagner	" 25 pks.	Boutcher, Mortimore & Co.	" 85 cks.	Dolton & Co.	Belgium, 40 brls.	Burrell & Co.
Belgium, 315	Société John Cockerill	" 183	A. & W. Nesbitt	Potassium Carbonate—		Holland, 18 cks.	Perkins & Homer
U. States, 173	E. E. Bailes	Valonia		Germany, 14 c.	A. C. Lloyd	" 22	A. Lembeck & Co.
" 690	F. Parker	A. Turkey, 121 t.	A. & W. Nesbitt	Belgium, 200	Petri Brs.	Belgium, 49	J. L. Lyon & Co.
Germany, 676	T. H. Lee	Madagascar, 6 cs.	Blythe, Greene & Co.	France, 90	"	Wood Pulp—	
Holland, 37	Type & King	N. Zealand, 11	J. H. Schroder	Potassium Chloride—		Norway, 150 bls.	Johnsen & Jorgensen
" 9	H. Lorenz	Dyestuffs (otherwise undescribed)		Holland, 14 cks.	H. Johnson & Sons	Holland, 540 pks.	Phillips & Graves
" 18	T. H. Lee	Germany, 1 ck.	Brewer, Bennett & Co.	Potassium Oxalate—		Sweden, 340	Henderson, Craig, & Co.
Cream of Tartar—		Glucose—		Holland, 4 cks.	R. W. Greeff & Co.	" 400	E. J. & W. Goldsmith
France, 10 cks.	M. Ashby, Ld.	France, 223 pks.	287 c. W. E. Cole	Potassium Prussiate—		" 240	W. G. Taylor & Co.
" 5	W. C. Bacon & Co.	U. States, 865	1,725 c. L. Norman	Belgium, 15 brls.	Perkins & Homer	Portugal, 400	E. J. & W. Goldsmith
" 40	B. & F. Wf. Co.	" 500	500 G. Clark & Sons	Pyrates—		Germany, 500	Henderson, Craig, & Co.
" 10	C. F. Gerhardt	" 150	928 Williams, Torrey & Co.	Pt. Pirie, 2,020 t.	Union L. Co., Ld.	" 1,600	Little & Johnston
" 2	McNamara & Co.	" 150	928 Williams, Torrey & Co.	Spain, 1,496	Anderson, Anderson, & Co.	Germany, 93	Tough & Henderson
Spain, 20	W. C. Bacon & Co.	Germany, 20	46 M. D. Co.	Portugal, 946	Vasey & Co.	Holland, 16	T. H. Lee
" 40	B. & F. Wf. Co.	U. States, 399	2,454 Deering & Robottom	Rosin—		" 3,153	E. J. & W. Goldsmith
Holland, 30	Kirkpatrick & Co.	" 50	300 Page, Son & East	U. States, 500 brls.	Prod. Brokers' Co.	Norway, 3,271	Moreton Cox & Co.
France, 4	L. & N. W. Rly. Co.	" 650	886 Robinson, Son & Co.	" 2,073	T. Nickels & Co.	Zinc Oxide—	
Cresoline—		" 50	300 A. E. Pigott	" 990	J. Knight & Son	Holland, 40 cks.	Spies Brs. & Co.
Germany, 12 cs.	T. H. Lee	" 50	300 W. Grose & Co.	" 3,326	F. & S. Chiesman & Co.	Germany, 2	Drolenvaux & Bremner
Dextrine—		" 100	600 E. & T. Pink	Saltpetre—		Holland, 50	Prprs. Dowgate Dk.
Germany, 50 bgs.	Vokins & Co.	" 765	3,776 R. G. Hall & Co.	E. Indies, 1,528 bgs.	Lucas & Spencer's	" 25	J. Matton
" 50	G. Boor & Co.	Glue—		" 1,778	Perkins & Homer	" 500	Soundy & Sons
" 100	J. Barber & Co.	Germany, 152	T. H. Lee	Sodium—		" 75	Burrell & Co.
Dyestuffs—		Holland, 30	L. & I. D. Jt. Co.	Holland, 30 cks.	R. W. Greeff & Co.	Zinc Sulphate—	
Anthracene		" 70	G. Rahn & Co.	France, 56 cks.	J. Harrison	Adelaide, 88 pks.	A. Gibbs & Sons
Holland, 225 cks.	Burt, Boulton & Co.	" 122	Vokins & Co.	Belgium, 50 bgs.	H. Lorenz	LIVERPOOL.	
Argols		Germany, 60	Craven & Co.	" 50	J. Harrison	Week ending December 31st.	
Italy, 232 bgs.	Thames S. T. & L. Co., Ld.	Belgium, 180	Leach & Co.	Sodium Acetate—		Arsenic—	
Cochineal		Austria, 140	Ihlee & Sankey	France, 56 cks.	J. Harrison	Huelva, 46 cks.	Matheson & Co.
Canaries, 4 bgs.	G. S. Bruce	France, 97	J. Harrison	Belgium, 50 bgs.	J. Harrison	Hamburg, 20 kgs.	
Extracts		Italy, 250	Sanders & Knott	" 50	J. Harrison	Barytes—	
France, 30 cks.	L. & I. D. Jt. Co.	Holland, 300	M. H. Voss	Sodium Sulphate—		Rotterdam, 20 cks.	
" 100	S. M. Frankenstein & Co.	U. States, 73	L. P. D. Co.	Holland, 56 cks.	Deering & Robottom	Benzol—	
" 185	L. J. Levinstein & Sons	Guano—		Starch—		Hamburg, 1 cs.	
France, 50	B. & F. Wf. Co.	Peru, 2,280 t.	Anglo-Contl. Guano Works	Belgium, 212 cs.	F. Claydon & Co.	Bone Ash—	
Fustic		Holland, 70	G. Rahn & Co.	Holland, 120	T. H. Lee	Zarate, 630 bgs.	I. Nelson & Sons, Ld.
E. W. Indies, 15 t.	P. Macfadyen & Co.	Denmark, 12	Teguer, Price, & Co.	Germany, 60	Phillips & Graves	Borax—	
" 42	Benckendorf & Co.	France, 122	Vokins & Co.	Belgium, 20	J. Hall, junr., & Co.	Galveston, 2,715 sks.	Hainsworth
" 89	L. & I. D. Jt. Co.	Germany, 60	Craven & Co.	Belgium, 1,740	E. & T. Pink	Valparaiso, 2,398	Watson
Gambier		Belgium, 180	Leach & Co.	Germany, 300	Horne & Co.	Castor Oil—	
Singapore, 260 bgs.	G. R. Haller	France, 97	J. Harrison	Holland, 120	Phillips & Graves	Calcutta, 1,000 cs.	Ralli Brs.
" 1,014 bls.	Adamson, Gillfillan & Co.	Italy, 250	Sanders & Knott	U. States, 529	Little & Johnston		
" 437	L. & I. D. Jt. Co.	Holland, 300	M. H. Voss	France, 216 pks.	Prprs. Dowgate Dk		
" 721 pks.	Brinkmann & Co.	U. States, 73	L. P. D. Co.	Holland, 714 cs.	A. Starck		
" 221 bls.	J. Greig	Infusorial Earth—		" 120	Hernu, Peron, & Co.		
" 495	P. & O. S. N. Co.	Germany, 50 t.	A. Haacke	Stearine—			
Indigo		France, 45 t.	West & Penrose	Belgium, 63 bgs.	C. S. Lovell		
E. Indies, 5 chts.	Elkan & Co.			France, 250	G. Boor & Co.		
" 20	R. von Glehn			Belgium, 251	H. Hill & Sons		
" 84	Parry & Co.						
Belgium, 2 cs. 1 ble.	Société John Cockerill						

Colours—		
Ghent,	4 brls.	J. T. Fletcher & Co.
Rotterdam,	1 cs. 1 tub	
Cream of Tartar—		
Oporto,	5 cks.	Sacise & Klemm
"	5	German Bank of London
Tarragona,	5 pps.	Sacise & Klemm
Dried Blood—		
Zarate,	143 bgs.	J. Nelson & Sons, Ltd.
Dyestuffs—		
Argols		
Oporto,	102 cks.	German Bk. of London
Cutch		
Rangoon,	250 bbs.	
Indigo		
Calcutta,	4 cts.	
Fustic		
Vera Cruz,	4,337 ps.	R. B. Watson & Co.
Logwood		
Laguna,	440 t.	Skelton & Schofield
Madder		
Rotterdam,	2 cks.	
Saffron		
Valencia,	1 cs.	
Shumac		
Palermo,	855 bgs.	
Valonia		
Syra,	376 bgs.	
Glucose—		
New York,	375 brls.	T. M. Duche & Co.
"	200	
Glue—		
St. Nazaire,	10 cs. 47 cks.	
Rotterdam,	7	
Iodine—		
Valparaiso,	20 brls.	A. Gibbs & Sons
Lamp Black—		
Gothenburg,	30 cs.	
Lithopone—		
Rotterdam,	40 cks.	
Manganese Ore—		
Coquimbo,	1,800 t.	
Poti,	1,970	
Molasses—		
Alexandria,	1,045 brls.	
Bahia,	2	Millward, Bradbury & Co.
Paint—		
Boston,	30 cs.	
Paraffin Scale—		
Baltimore,	200 brls.	
Philadelphia,	23	
Paraffin Wax—		
Philadelphia,	100 brls.	
Phosphate—		
Terneuzen,	1,000 bgs.	
Phosphate Rock—		
Terneuzen,	260 t.	
Potash—		
Portland, M.,	9 brls.	Makin & Bancroft
Pyrites—		
Huelva,	1,942 t.	Matheson & Co.
Rosin—		
Brunswick,	5,024 brls.	
Savannah,	9,479	
Soap—		
New York,	qty.	Colgate & Co.
Newport News,	100 brls.	
N. Orleans,	238	
Constantinople,	1 bg.	
Leghorn,	25 cs.	
Starch—		
New York,	700 bgs.	
Newport News,	650	
Boston,	110 brls.	
Hamburg,	316 cs.	
Sulphur—		
Catania,	209 t. 250 bgs.	
Tallow—		
New York,	250 hds.	W. D. Vandenhove & Co.
Zarate,	264 pps.	J. Nelson & Sons, Ltd.
Philadelphia,	71 tcs.	
Tartar—		
Bordeaux,	13 cks.	
Hamburg,	7	
Ultramarine—		
Hamburg,	9 cks.	

Varnish—		
Rotterdam,	2 cks.	
White Lead—		
Rotterdam,	9 cks.	J. Matthews & Co.
"	138	
Wood Pulp—		
Gothenburg,	250 bds.	G. F. Green & Co.
"	51 pks.	G. Schenkmoald & Co.
Rotterdam,	119 bls.	
Zinc Oxide—		
Rotterdam,	25 cks.	

MANCHESTER.

Week ending January 2nd.

Ammonium Acetate—		
Rotterdam,	2 brls.	
Asbestos—		
Rouen,	12 cs.	
Beta-naphthol—		
Rotterdam,	1 brl.	
Bone Ash—		
Rio Grande Do Sul,	127 t.	J. Gordon & Co.
"	507	
Chemicals (otherwise undescribed)		
Rotterdam,	1 ck.	
Colours—		
Boulogne,	3 cks. 3 cs.	
Hamburg,	5	
Rotterdam,	8 2	
Antwerp,	4	
Rouen,	2	
Cream of Tartar—		
Rotterdam,	4 cks.	
Dyestuffs (otherwise undescribed)		
Rouen,	10 cks.	
Farina—		
Rotterdam,	502 bgs.	
Hamburg,	100	
Stettin,	200	Browne, Geveke, & Co.
"	840	
Gelatine—		
Rouen,	21 cs.	
Glucose—		
New York,	250 brls.	4 cks.
Stettin,	1,000 bgs.	
Glue—		
Hamburg,	70 bgs.	100 bls.
Rotterdam,	20	
Antwerp,	2 brls.	10
Rouen,	40 bgs.	39
Limestone—		
Antwerp,	5 cts. 6 cs.	
Litharge—		
Rotterdam,	6 cks.	
Oxalic Acid—		
Rotterdam,	15 bgs.	
Potassium Chloride—		
Hamburg,	5 cks.	
Potassium Oxalate—		
Rotterdam,	10 cks.	
Rosin—		
Savannah, G.,	3,221 brls.	
Wilmington,	4,118	
Soda—		
Rouen,	43 cks.	
Sodium Nitrate—		
Rotterdam,	19 cks.	
Starch—		
New York,	592 bgs.	80 sks.
Hamburg,	20	265 cs. 160
Tartar—		
Rotterdam,	12 cks.	
Tin Oxide—		
Rotterdam,	10 cks.	
Wood Pulp—		
Hamburg,	400 pks.	400 bls.
Gothenburg,		4,227
Zinc Ashes—		
Stettin,	15 cks.	
Antwerp,	8	
Zinc Oxide—		
Rotterdam,	30 brls.	
Zinc Sulphate—		
Rotterdam,	7 brls.	
Zinc White—		
Rotterdam,	30 cks.	

HULL.

Week ending January 2nd.

Albumen—		
Reval,	1 cs.	Wilson, Sons, & Co., Ltd.
Arsenic—		
Hamburg,	9 brls.	Wilson, Sons, & Co., Ltd.
Barytes—		
Riga,	15 cks.	Wilson, Sons, & Co., Ltd.
Amsterdam,	99	Hutchinson & Son
"	75 sks.	& Son
Rotterdam,	23	W. & C. L. Ringrose
Camphor—	44	Hutchinson & Son
Hamburg,	1 ck.	Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed)		
Dunkirk,	4 dms.	Wilson, Sons, & Co., Ltd.
Danzig,	13 cks.	
Cod Oil—		
Hamburg,	33 brls.	Wilson, Sons, & Co., Ltd.
Bergen,	7	"
Colours—		
Hamburg,	4 pks.	Sissons Bks. & Co.
Antwerp,	1 cs.	Bailey & Leatham
Rotterdam,	4 bxs.	W. & C. L. Ringrose
Antwerp,	137 pks.	Wilson, Sons, & Co., Ltd.
Cottonseed Oil—		
New York,	15 brls.	Wilson, Sons, & Co., Ltd.
Cream of Tartar—		
Rotterdam,	2 cks.	Hutchinson & Son
Dyestuffs—		
Alizarine		
Rotterdam,	26 brls.	W. & C. L. Ringrose
Shumac		
Palermo,	500 bgs.	Wilson, Sons, & Co., Ltd.
"	1,525	
Farina—		
Hamburg,	30 bgs.	Wilson, Sons, & Co., Ltd.
Harlingen,	500 bls.	W. & C. L. Ringrose
Glucose—		
New York,	100 brls.	Wilson, Sons, & Co., Ltd.
Rotterdam,	155	Hutchinson & Son
Glue—		
Dunkirk,	10 cks.	Wilson, Sons, & Co., Ltd.
Lead Acetate—		
Hamburg,	30 cks.	Bailey & Leatham
Limestone—		
Antwerp,	2 cs.	Wilson, Sons, & Co., Ltd.
Phosphate—		
Ghent,	180 t.	Wilson, Sons, & Co., Ltd.
Pitch—		
Antwerp,	1 ck.	Bailey & Leatham
Potash—		
Dunkirk,	17 cks.	Wilson, Sons, & Co., Ltd.
Rotterdam,	20	Hutchinson & Son
Antwerp,	20 dms.	Wilson, Sons, & Co., Ltd.
Potassium Chlorate—		
Stockholm,	10 pks.	H. Briggs, Sons, & Co.
Rosin—		
Brunswick,	1,490 brls.	G. & J. Rawstorn, Ltd.
Ga.,		
Salt—		
Rotterdam,	1 ck.	Hutchinson & Son
Soap—		
Rotterdam,	2 cs. 1 bx.	W. & C. L. Ringrose
Starch—		
Rotterdam,	66 cs.	Hutchinson & Son
Antwerp,	80	Bailey & Leatham
Ghent,	100	Wilson, Sons, & Co., Ltd.
Amsterdam,	40	Hutchinson & Son

Tar—		
Stockholm,	20 brls.	Wilson, Sons, & Co., Ltd.
Tartaric Acid—		
Rotterdam,	2 cks.	Hutchinson & Son
Treacle—		
New York,	291 brls.	Wilson, Sons, & Co., Ltd.
Turpentine—		
Brunswick,	1,795 brls.	G. & J. Rawstorn, Ltd.
Ga.,		
Varnish—		
New York,	20 pks.	Wilson, Sons, & Co., Ltd.
"	28 cs. 26 brls.	Sons, & Co., Ltd.
Waste Salt—		
Hamburg,	610 bgs.	
White Lead—		
Antwerp,	43 cks.	Bailey & Leatham
Amsterdam,	85	Hutchinson & Son
Rotterdam,	123	W. & C. L. Ringrose
"	45	Hutchinson & Son
Wood Pulp—		
Hamburg,	210 pks.	Bailey & Leatham
Christiania,	447 bls.	Wilson, Sons, & Co., Ltd.
Hango,	1,047 bls.	J. Good & Sons
Zinc Ashes—		
Amsterdam,	18 cks.	Hutchinson & Son
Zinc Oxide—		
Antwerp,	10 cks.	Bailey & Leatham
"	25	Sissons Bks. & Co.
Zinc White—		
Rotterdam,	1 ck.	W. & C. L. Ringrose
"	10	Hutchinson & Son

GLASGOW.

Week ending January 7th.

Acetate of Lime—		
Philadelphia,	298 bgs.	
Aniline—		
Rotterdam,	7 cks. 7 cs.	J. Rankine & Son
Arachide Oil—		
Rotterdam,	5 cks.	J. Rankine & Son
Asbestos—		
Genoa,	16 cs. 3 bls.	
Barium Chloride—		
Rotterdam,	4 cks.	J. Rankine & Son
Barytes—		
Rotterdam,	195 cks.	J. Rankine & Son
Bichrome—		
Christiania,	9 cks.	
Boracic Acid—		
Leghorn,	9 cks.	
Castor Oil—		
Leghorn,	71 cs.	
Marseilles,	10 cks.	J. Storer & Co.
"	4	Gordon & Co.
"	145	W. H. Alexander & Co.
Chrome Ore—		
Smyrna,	1,000 t.	Stevenson & Cairns
Colours—		
Rotterdam,	2 bxs. 31 pks. 7 cks.	J. Rankine & Son
Danzig,	3 cks.	
Dyestuffs—		
Alizarine		
Rotterdam,	50 cks. 1 cs.	J. Rankine & Son
Logwood		
Jamaica,	450 t.	Mucklow & Co.
Shumac		
Palermo,	780 bgs. 30 bls.	
Valonia		
Smyrna,	220 t.	Mackinnon & Matheson
Glucose—		
New York,	150 brls.	
Glue—		
Genoa,	25 cks.	
Naples,	40 bgs.	

Guanos — Cape Cross, 1,160 t. Lawe's Cheml. Co.	Soap — Naples, 94 cs. Nantes, 3 cks. Philadelphia, 600 bxs. 39 crts.	TYNE. <i>Week ending January 2nd.</i>	Farina — Hamburg, 100 bgs.
Gypsum — Rouen, qty.	Starch — New York, 600 sks. Amsterdam, 80 bxs.	Ochre — Rouen, 105 cks. Jos. Brown & Co.	Ochre — Boulogne, 1 ck. Rouen, 24
Manganese — New York, 33 cs.	Stearine — Drontheim, 25 cks.	Phosphate — Bona, 1,151 t. Langdale's Chemical M. Co.	Potash — Dunkirk, 40 dms.
Manganese Chlorate — Rotterdam, 6 cks. J. Rankine & Son	Sulphur — Catania, 218 t. 65 cks. T. Laurie 291 brls. 49 2,039 bgs.	Pyrites — Huelva, 1,276 t. Tharsis Sulphur & Copper Co.	Wood Pulp — Hamburg, 640 pks.
Ochre — Marseilles, 63 cks.	Tallow — New York, 70 hds.	Stearine — Rotterdam, 7 bgs. Tyne S. S. Co.	GRIMSBY. <i>Week ending January 2nd.</i>
Oxalic Acid — Rotterdam, 6 cks. J. Rankine & Son	Treacle — Philadelphia, 1,125 brls. Waddell & Bryson	Wood Pulp — Copenhagen, 400 bls.	Albumen — Hamburg, 5 cks.
Paraffin Scale — Philadelphia, 562 brls.	Tar — 100	GOOLE. <i>Week ending December 30th</i>	Caoutchouc — Antwerp, 5 cs. Rotterdam, 1
Plumbago — Genoa, 200 bgs.	Tar — Savannah, 2,000 brls. L. & J. M'Lellan	Alizarine — Rotterdam, 31 cks. 2 cs.	Chemicals (otherwise undescribed) Hamburg, 17 cs. Antwerp, 1
Potash — Rotterdam, 52 cks. J. Rankine & Son	Yarnish — New York, 3 cs. 56 brls. 1 bx. 1 hf.-brl.	Alkali — Calais, 21 cks.	Colours — Antwerp, 17 cs. 26 pks. Hamburg, 21 31 Rotterdam, 102 bgs.
Pumice Stone — Messina, 6 bgs. 3 cks. 31 cs.	White Lead — Rotterdam, 38 cks. J. Rankine & Son	Alumina Sulphate — Rotterdam, 27 cks.	Dyes — Antwerp, 32 pks.
Pyrites — Huelva, 1,768 t. Tharsis Co.	Whiting — Marseilles, 100 bgs. W. H. Alexander & Co.	Caoutchouc — Boulogne, 6 cks.	Glue — Dieppe, 3 ske.
Rosin — New York, 400 brls. Savannah, 6,580 W. N. Gemmill & Co.	Zinc Oxide — New York, 50 brls.	Colours — Hamburg, 53 cks. 11 cs.	Lamp Black — Malmo, 192 cks.
Saltpetre — Rotterdam, 60 cks. J. Rankine & Son	Zinc White — Rotterdam, 80 cks. J. Rankine & Son	Dyestuffs (otherwise undescribed) Boulogne, 17 cks. 7 cs. 50 pks. Rotterdam, 154 50 1	Plumbago — Hamburg, 14 pks.
			Starch — Antwerp, 80 cs.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 6th.

Alkali — Lyttelton, 1 t. 3 c. £6	Alumina — Cologne, 10 dms. £76	Ammonia (Liquid) — Yokohama, 3 cs. £12	Ammonium Carbonate — Rotterdam, 10 kgs. £15 New York, 50 pks. 220	Ammonium Chloride — Bourgas, 9 c. £14 Varna, 1 t. 1 34 Trebizonde, 1 35 Sydney, 4 cks. 21 Batoum, 6 brls. 32	Ammonium Sulphate — Hamburg, 50 t. £400 Bremen, 50 390 Las Palmas, 59 15 c. 478 Ghent, 145 1,110 Antwerp, 180 1,440	Anhydrous Ammonia — Cape Town, 6 cydls. £100 Sydney, 25 200	Bleaching Powder — E. London, 40 pks. £26	Borax — Perth, 9 kgs. £10	Carbolic Acid — Rotterdam, 4 t. 15 c. £108 Barcelona, 20 cks. 121	Carbonic Acid Gas — Jersey, 27 tubes £10	Caustic Soda — Hong Kong, 4 c. £6 E. London, 1 t. 18 46 Algoa Bay, 1 3 25 Wanganui, 4 14 Cape Town, 4 5 Newcastle, 40 350 Wellington, 5 1 36	Chemicals (otherwise undes.) — Colombo, 98 cs. £486 Sydney, 3 21 New York, 9 102 Calcutta, 16 20 kgs. 491 Gibraltar, 3 20 Bombay, 8 76 Melbourne, 42 412 Hamburg, 1 27 Geraldton, 5 pks. 13
--	--	--	--	--	---	--	---	-------------------------------------	--	--	--	---

Brisbane,	10	20	61
Dunkirk,	6	3 c.	75
Boulogne,	3	10 pks.	84
Marseilles,		44	53
Adelaide,	4	2	21
Yokohama,	7	5	81
Citric Acid—			
Seville,		10 c.	£60
Natal,	1 cs.		12
Alexandria,		5	39
Algoa Bay,		2	1 kg. 19
Brussels,	1 t.		120
Hamburg,	1 ck.	40	277
Auckland,		5	30
Coal Products—			
Alizarine			
Bombay,	100 cks.		£230
Aniline			
Melbourne,	2 cs.		£11
Aniline Oil			
Rotterdam,	12 dms.		£530
Aniline Salts			
Piræus,	4 cks.		£50
Benzine			
Algoa Bay,	4 pks.		£6
Benzol			
Rotterdam,	69 cks.		£320
Hamburg,	21 rnts.		150
Creosote			
B. Ayres,	10 brls.		£8
Dieppe,	23 500 gallons		123
Creosote Salts			
Philadelphia,	1,075 bgs.		£535
Naphtha			
Treport,	27 brls.		£110
Sydney,	8 cs.		10
Naphthalene			
New York,	100 bgs.		£66
Pitch			
Alexandria,	200 brls.		£74
Antwerp,	410 t.		759
Paris,	29 tins		8
New York,	500 cks	530 bgs.	345
Boston,	250		150
Newport News,		617	105
Prussian Blue			
Amsterdam,	3 cks.		£14
Tar			
Natal,	400 dms.		£15
E. London,	60		5
Newport News,		500 brls.	338
Sydney,	50	25	37
Copper Sulphate—			
Varna,	1 t.	5 c.	£21
Melbourne,	5		84
Ghent,	1		18
Hobart,	5		85
Marseilles,	5	16	90

Cream of Tartar — Perth, 31 kgs. £158 Sydney, 2 t. 170 Bundsburg, 8 c. 36 Wanganui, 5 cs. 13 Melbourne, 20 91 Hio, 10 44 Newcastle, 1 5 Hobart, 2 10	Disinfectants — Perth, 2 cs. 15 pks. £30 Sydney, 3 21 Melbourne, 8 12 cks. 77 Timaru, 6 dms. 13 E. London, 7 10 Pt. Elizabeth, 4 5 M. Video, 2 13 Hamburg, 50 250 Natal, 3 16 Adelaide, 7 41 Cape Town, 9 14	Manure — Orotava, 11 t. £66 New York, 25 219 Cherbourg, 1 1 c. 48 Canaria, 35 115 Jersey, 51 5 500 Penang, 116 1 924	Myrbane — Wellington, 3 cs. £10	Potassium Bichromate — Melbourne, 10 kgs. £23	Potassium Carbonate — Algoa Bay, 1 t. 3 c. £20	Potassium Chlorate — Rotterdam, 11 c. £21	Potassium Cyanide — Delagoa Bay, 6 c. £28 Sydney, 2 t. 10 5 cs. 320 Melbourne, 3 65	Potassium Prussiate — Genoa, 4 c. £10 Cologne, 1 ck. 18	Salt Cake — Antwerp, 145 t. £254	Saltpetre — Rio de Janeiro, 14 t. 14 c. £331 Pernambuco, 7 19 179 Boston, 5 105 Lyttelton, 20 kgs. 23	Salts of Soda and Lime — New York, 1 t. £175	Sheep Dip — B. Ayres, 2,700 cs 1,500 bgs. £13 092 233 pks.
---	--	---	---	---	--	---	---	--	--	--	--	---

E. London,	875 dms.	100
Pt. Natal,	4	24
Townsville,	30	30
Soda—		
Auckland,	5 t.	£54
Sodium Bicarbonate—		
Fremantle,	2 t. 3 c.	£13
Hobart,	10	7
Sulphur—		
Algoa Bay,	1 t. 2 c.	£12
Sulphuric Acid—		
Calcutta,	10 cs.	£10
Tartaric Acid—		
Perth,	6 c.	£39
Lyttelton,	5	28
Wellington,	5	28
Adelaide,	1 t.	111
B. Ayres,	4	448
Corunna,	5	27

LIVERPOOL.

Week ending January 6th.

Alum — Lisbon, 7 t. £35 Kustendjie, 2 5 c. 12 Maranham, 1 4 2 q. 7 Feyrout, 1 5 B. Ayres, 1 14 7 Varna, 3 15 3 17 Patras, 1 9 1 7 Talcahuano, 3 14 Syra, 3 12 2 17 Havana, 9 3 25 Alexandria, 6 10 32	Ammonia (Liquid) — Carthagena, N.G., 4 cs. £8	Ammonium Carbonate — Yokohama, 4 t. 1 c. 1 q. £136 Melbourne, 1 3 27 Sydney, 15 cs. 1 3 3 48 Danzig, 6 8 Stettin, 6 8 Malaga, 3 1 4	Ammonium Chloride — Antwerp, 11 c. £13 Barcelona, 1 t. 20 Venice, 20 14 307 Philadelphia, 22 9 1 q. 437 Toronto, 11 24 Rosario, 5 8 Gijon, 11 20 Malaga, 2 4 Varna, 10 17 Colombo, 4 15 34
---	---	--	---

Ammonium Sulphate—

Malaga,	20 t.	11 c.	2 q.	£150
Alicante,	25	6		230
Norfolk, Va.,	25	13	1	195
Newport News,	78		1	593
Demerara,	97	19	3	796
Honolulu,	202	16		1,535
Nantes,	50			340
Philadelphia,	100	7	2	760
New York,	101	18	2	780
Genoa,	30	1	3	225
Valencia,	158	10	1	1,190
Las Palmas,	25	7		198
Cullera,	176	16		1,368

Arsenic—

New York,	8 t.			£100
Barcelona,		4 c.		5

Bisulphate of Lime—

Plant,	1 t.	18 c.		£40
--------	------	-------	--	-----

Bleaching Powder—

Alicante,	28 cks.			
Ancona,	22			
Baltimore,	53	10 bxs.		
Bari,		20 kgs.		
Boston,	559			
Genoa,	294			
Lisbon,	38			
Leghorn,	62			
Nantes,	91			
Naples,	17			
Newport News,	209			
New York,	20	50 brls.		
Oporto,	3			
Rouen,	127			
Valparaiso,	2			
Venice,	15			
Vera Cruz,		10		

Boric Acid—

Rotterdam,	2 t.	6 c.	1 q.	£56
------------	------	------	------	-----

Borax—

Hamburg,	1 t.			£20
Constantinople,		7 c.	3 q.	9
Portland,	5	2		107
Genoa,	1	19	2	39
Seville,	3	2	3	58
Antwerp,	17	14	3	357
Rotterdam,	28	16	1	675
Stettin,		14	3	15

Carbolic Acid—

Rotterdam,	10 t.			£607
Hamburg,	1	5 c.		87
Calcutta,	4	10		52
Newport News,	10	4		595

Caustic Potash—

Antwerp,		2 c.		£3
Genoa,		14		20
Baltimore,		3		4
Barcelona,	1 t.	9		40

Caustic Soda—

Alexandria,	100 dms.			
Alicante,	60			
Ancona,	91			
Bahia,	65			
Baltimore,	350	16 bxs.		
Barcelona,	760	99 cks.		
Bari,	99			
Batavia,	3			
Bombay,	20			
Bordeaux,	17			
Boston,	250			
B. Ayres,	44			
Callao,	59			
Catania,	36			
Corunna,		20	22 brls.	
Dunkirk,	30			
Eten,	6			
Fiume,	150			
Fairwater,	155			
Genoa,	136			
Gibraltar,	20			
Halifax,	30			
Hamburg,	84		10	
Havana,	60			
Kobe,	30			
La Guayra,	12			
Lisbon,	165		17	
Leghorn,	30			
Malaga,	130		15 pks.	
Messina,	25			
Newport News,	50			
New York,	1,112		25 bxs.	
Odessa,	100			
Oporto,	30			
Pernambuco,	23			
Philadelphia,	25			
Piraeus,	25			
Portland, M.,	50			
Rangoon,	19			
Riga,	20			
Rio de Grande,	60			
Samarang,	30			
Santos,	40			
Seville,	235			
Shanghai,	18			
Tampico,	30			

Chemicals (otherwise undecoded)

Valparaiso,	169			
Antwerp,	10 c.			£47
Calcutta,	12 t.	5	2 q.	33
Philadelphia,	13	5		420
Genoa,	10			17
Bombay,	4	10		153

China Clay—

Barcelona,	42 cks.			
Boston,	847			
New York,	400			
Philadelphia,	280			
Portland, M.,	477			
Rio de Janeiro,	40			

Coal Products—

Aniline Colours	1 cs.			
Aniline Oil	10 dms.			
Newport News,	10 cks.	1 cs.	3 brls.	
New York,	3	12 tins		

Aniline Salts

New York,	15 cks.	30 cs.		
-----------	---------	--------	--	--

Anthracene

Rotterdam,	100 bls.			
------------	----------	--	--	--

Creosote Oil

N. Orleans,	800 glns.			
-------------	-----------	--	--	--

Pitch

Genoa,	100 t.			
--------	--------	--	--	--

Oporto,

Oporto,	100			
---------	-----	--	--	--

Port Natal,

Port Natal,	15 cks.			
-------------	---------	--	--	--

Valparaiso,

Valparaiso,	10 bls.			
-------------	---------	--	--	--

Tar

Port Natal,	100 dms.			
-------------	----------	--	--	--

Tar Oil

St. Nazaire,	12 cks.			
--------------	---------	--	--	--

Copper Sulphate—

Bilbao,	20 t.	4 c.	2 q.	£150
Trani,	9	14		155
Bari,	2	7 1		119
Venice,	5	1 1		169
Trieste,	10			2 438
Batoum,	150			435
Brindisi,	25	15		853
Algiers,	50			290
Bordeaux,	54	1	3	21
Constantinople,	1	5		923
Rouen,	60	3	2	258
Ancona,	16	1		119
Bari,	7	10		1,463
Leghorn,	89	13	3	82
Naples,	4	19		138
Oporto,	6	16	2	167
Barcelona,	10	1		514
Palermo,	32	1	2	146
Fiume,	9	3		303
Catania,	22			19
Rotterdam,	1	5	1	1,739
Genoa,	127	17		713
Venice,	44	12		

Copperas—

Vera Cruz,	2 t.			£5
Alexandria,	11			17
Valparaiso,	55			5
Las Palmas,	7	17 c.		20

Cream of Tartar—

Acapulco,	1 c.	1 q.		£6
-----------	------	------	--	----

Disinfectants—

Sydney,	50 dms.	9 cs.		£77
New York,	1 t.	11 c.	2 q.	25
Rangoon,		16		57

French Chalk—

Pernambuco,	94 bgs.			
-------------	---------	--	--	--

Guano—

Seville,	4 t.	18 c.		£31
Malaga,	58			450

Iron Oxide—

Philadelphia,	20 t.	19 c.		£450
---------------	-------	-------	--	------

Lime—

Maranham,	2 t.			£5
Accra,	5 t.	10 c.		12
Lagos,	14			39
Little Popo,	9			43

Magnesia—

B. Ayres,	6 cs.			
Havre,	24			
Rosario,	2			
Tampico,	2			

Magnesium Chloride—

Paris,	5 t.	2 c.		£13
New York,	10	3		21

Manure—

New York,	15 c.			£10
-----------	-------	--	--	-----

Oxalic Acid—

Boston,	9 t.	19 c.	2 q.	£310
B. Ayres,		4		7
M. Video,		6	3	12

Paint—

Alexandria,	30 kgs.	1 cs.		
Antwerp,	7 cks.			
Belize,	6	45		
B. Ayres,	80			
Callao,	150	12		
Cienfuegos,		20 dms.		
Colon,	11	13 pks.		
Curacao,				
Gd. Bassam,	3	45		
Hong Kong,				
N. Orleans,		72 dms.		
New York,	1	116		
Porto Plata,	6			
Ponce,	203			
Port Natal,	88			
Sapeli,				
Savannah,	6 cs.		40 pks.	
Sierra Leone,	30			
Teneriffe,	83			
Vera Cruz,	118 dms.			
Warri,		24		

Painters' Colours—

Alexandria,	1 brl.	50 kgs		
Baltimore,	339 cks.			
Bombay,	2			
New York,	5	25	1 bx.	
Yokohama,	8 brls.			

Paraffin Wax—

B. Ayres,	10 cs.			
Manaos,	25			
Para,	10			
Paris,	10			

Phosphorus—

Hiogo,	1 t.			£360
--------	------	--	--	------

Potassium Bichromate—

Santos,	2 t.	10 c.		£13
M. Video,	15	1 q.		30
Rouen,	1	3		49
Hong Kong,	2			5
Malaga,	2			4

Potassium Carbonate—

Baltimore,	6 c.			£7
------------	------	--	--	----

Potassium Chlorate—

Ancona,	1 t.	5 c.		£47
Hong Kong,	1	5		47
Kobe,	2	10		82
Hiogo,	10			380
Shanghai,	3	15		122
Gothenburg,	30			686
Stettin,	2	10		83
New York,	25	11		989
Boston,	10			386

Salt—

Adelaide,	26 t.	11 c.		
Algoa Bay,	26 t.	15		
Anamaboe,	6	17		
Antwerp,	1	16		
Baltimore,	444			
Boston,	80			
Conakry,	50	4		
Fuca,	20			
Galveston,	25	4		
Kinsembo,	20			
Lagos,	130			
Manoh,	25			
Melbourne,	50			
N. Orleans,	200			
New York,	205			
Noqui,	30			
Para,	441	11		
Portland, Me.,	200			
St. John's,				
St. John, N.B.,				
Sulymah,	10			
Sydney,	270			
Victoria,	90			
Wellington,	10			

Salt Cake—

Antwerp,	125 t.	8 c.		£164
Philadelphia,	10	1		18
Baltimore,	356	16		595
Genoa,	25	1		46

Saltpetre—

Plant,	4 t.			£105
Bahia,	1			25
Para,	2	10 c.		52

Sheep Dip—

Algoa Bay,	11 t.	10 c.		£194
Cape Town,	12			7
San Francisco,	5	10		150

Soap—

Cape Town,		18	
San Francisco,	5	10	15
Soap—			
Accra,		56 bxs.	
Addah,		20	
Alexandria,		25	18 dms.
Algoa Bay,	1,105		77 Cs.
Antigua,		42 bds.	
Antwerp,			280
Axim,	100		
Barbadoes,	166		
Barcelona,			10
Bathurst,	180		

Sodium Bichromate —			
Ronen,	11 cks.		
Sodium Carbonate —			
Boston,	56 brls.		
New York,	56		
Sodium Chlorate —			
New York,	1 ck.		
Portland, Me.,	100 kgs.		
Sodium Silicate —			
Havre,	20 brls.		
San Sebastian,	17		
Alicante,	30 cks.		
Starch —			
Pernambuco,	150 bgs.		
Sulphur —			
Toronto,	5 t.	14 c.	£19
Boston,	220	10	831
St. John, N.B.,	2	15	3 q.
Sulphuric Acid —			
Macao,	1 t.	4 c.	£9
Rio de Janeiro,	1	10	2 q.
Superphosphates —			
Cullera,	325 t.	1 c.	3 q.
Castellon,	100	220	£675
Venice,	2,022	12	4,157
Seville,	1	16	6
Valencia,	10		22
Varnish —			
Bombay,	2 cks.		
Callao,	4 cs.		
Cape Town,	8		
Para,	30 dms.		
Pernambuco,	2		
Rotterdam,	8		
Vera Cruz,	50		
Verdigris —			
Tokio,	1 t.	2 q.	£44
White Lead —			
Pt. Natal,	520 kgs.	80 cs.	
Sierra Leone,	20		
Zinc Chlorate —			
New York,	3 t.		£28
Zinc Chloride —			
Bombay,	5 t.	12 c.	£100

MANCHESTER.

Week ending January 6th.

Ammonium Carbonate —			
Rotterdam,	6 cks.	2 kgs.	
Ammonium Chloride —			
Imorab,	10 brls.		
Aniline Colours —			
Rotterdam,	1 cs.		
Hamburg,		5 kgs.	
Aniline Oil —			
Antwerp,	5 dms.		
Rotterdam,	4		
Hamburg,	5		
Aniline Salts —			
Antwerp,	10 cks.		
Asbestos —			
Bombay,	3 bls.		
Benzol —			
Rotterdam,	25 cks.		
Carbolic Acid —			
Rotterdam,	25 cks.		
Caustic Soda —			
Copenhagen,		1 pk.	
Beyrout,	97 dms.		
Tunis,	30		
Chemicals (otherwise undescribed)			
Alexandria,	20 cks.		
Antwerp,	5		
Limassol,	1		
China Clay —			
Gothenburg,	2 cks.		
Colours —			
Bombay,	2 kgs.		
Cottonseed Oil —			
Gabes,	20 brls.		
Max,	20		
Tunis,	115		
Alexandria,	79		
Dextrine —			
Barcelona,	62 bxs.		
Dyestuffs (otherwise undescribed)			
Barcelona,	11 cks.		
Farina —			
Bombay,	3 cks.		
Glue —			
Rotterdam,	10 cks.		
Barcelona,	16		
Bombay,	1		
Linseed Oil —			
Alexandria,	55 brls.		
Tunis,	2 cks.		

Magnesium Sulphate —			
Alexandria,	40 kgs.		
Paint —			
Alexandria,	20 brls.		
Painters' Colours —			
Beyrout,	1 brl.	25 kgs.	1 cs.
Tunis,	2 cks.		
Pitch —			
Cette,	1,072 t.	17 c.	
Salt Cake —			
Antwerp,	2,015 c.		
Soap —			
Mersyne,	4 frks.		
Paris,	2 cks.		
Soda Ash —			
Beyrout,	60 brls.		
Soda Crystals —			
Alexandria,	50 cks.		
Sodium Bicarbonate —			
Alexandria,	8 cks.		
Sodium Sulphate —			
Bombay,	200 bgs.		
Starch —			
Bombay,	9 cks.		
Tar Salts —			
Hamburg,	47 cks.		
Toluol —			
Rotterdam,	20 brls.		
Turpentine —			
Alexandria,	5 brls.	55 dms.	
White Lead —			
Alexandria,	60 kgs.		
Zinc Chloride —			
Bombay,	5 cks.		

HULL.

Week ending January 2nd.

Ammonium Sulphate —			
Ghent,	501 bgs.		
Benzol —			
Rotterdam,	48 cks.		
Bleaching Powder —			
New York,	100 cks.		
Odessa,	20		
Caustic Soda —			
Riga,	100 dms.		
Chemicals (otherwise undescribed)			
Constantinople,	154 cks.		
Danzig,	12	6 pks.	
Gothenburg,	1	20 cs.	5
Hamburg,	3	21	
Odessa,	7		
Riga,	22		
Rotterdam,	60	130	
China Clay —			
Bergen,	20 bgs.		
Cottonseed Oil —			
Antwerp,	910 c.		
Amsterdam,	1,054		
Gothenburg,	1,600		
Hamburg,	152		
Rouen,	320		
Rotterdam,	652		
Stettin,	35		
Dyestuffs (otherwise undescribed)			
Amsterdam,	23 cks.		
Riga,		5 pks.	
Rotterdam,		5 kgs.	
Stettin,	3	2 cs.	60 bgs.
Glue —			
Hamburg,	5 bgs.		
Linseed Oil —			
Alexandria,	75 c.		
Bergen,	172		
Hamburg,	312		
Painters' Colours —			
Antwerp,	20 cks.		
Dunkirk,	5		
Gothenburg,	1	2 pks.	
Hamburg,	9		
New York,	15	40	
Odessa,	134		
Rotterdam,	10	24 cs.	
Pitch —			
Antwerp,	189 t.		
Tallow —			
Dunkirk,	48 cks.		
Tar —			
Amsterdam,	30 cks.		
Hamburg,	10		
Rotterdam,	7		
Varnish —			
Antwerp,	1 ck.	1 cs.	
Drontheim,		1	
Hamburg,	2		
Rotterdam,		1	

GLASGOW.

Week ending January 7th.

Ammonium Sulphate —			
Italy,	89 t.	15 c.	
Hamburg,	152	3	
Baltimore,	323	6½	
Barbadoes,	204	2	
Bordeaux,	5		
Demerara,	152	10½	
New York,	25		
Valencia,	220	12¾	
Borax —			
London, Ont.,		£411	
Caustic Soda —			
U.S.A.,	59 t.	13 c.	
Coal Products —			
Creosote Oil —			
U.S.A.,		£35	
Pitch —			
Italy,	14 t.	16 c.	£24. 15s.
Tar —			
Batavia,		£47	10s.
Calcutta,		200	
Java,		43	
Madras,		27	10
Tagal,		50	
Tar Oil —			
Hamburg,	33 t.	10 c.	
Coal Products (otherwise undes.) —			
Rotterdam,		£1,380	
Cod Oil —			
Italy,	1 t.		
Extracts —			
Barcelona,		£39	
Guanos —			
Valencia,	25 t.	14¾ c.	
Malaga,	24	12	
Lime —			
Trinidad,	28 t.	18 c.	
Manganese —			
Italy,	1 t.	12 c.	
Paint —			
Kingston,		£33. 11s.	
Penang,		£68	
Painters' Colours —			
Barbadoes,		£37	
Hio,go,		60	
Kingston,	qty.		
Shanghai,		128	
Rotterdam,		15	
Cape Colony,		110	
Hong Kong,		110	
Paraffin Wax —			
Christiania,		£60	
Barcelona,		659	
Bordeaux,		53	
Phosphoric Acid —			
Trinidad,		£44. 11s.	
Potash Salts —			
Madras,		£300	
Singapore,		79	
Potassium Bichromate —			
Hio,go,		£42	
Italy,	15 t.	¾ c.	
Amsterdam,		196	
B. Ayres,	2	1¾	
Melbourne,		43	
Montreal,		308	
Sheep Dip —			
B. Ayres,	41 t.	¾ c.	
Soap —			
St. Vincent,	1 t.	10 c.	
Barbadoes,	1	5	
Johannesburg,	5	8	
Sodium Bichromate —			
Italy,	25 t.	7¾ c.	
Montreal,	3	3	
Starch —			
Rotterdam,		10 c.	
Sulphuric Acid —			
Colombo,		£35	
Madras,		121	
Superphosphates —			
Reunion,	21 t.	2 c.	
Tin Salts —			
Trinidad,		£165	
Treacle —			
Christiania,	22 t.	3 c.	
Durban,	1	13	
White Lead —			
Shanghai,		£101	
Zinc White —			
Hong Kong,	2 t.	10	

TYNE.

Week ending January 2nd.

Alkali —			
Savona,	30 t.	15 c.	
Rotterdam,		6	
Amsterdam,	23	6	
Antimony —			
Rotterdam,	3 t.		
Barium —			
Genoa,	15 t.	9 c.	
Bleaching Powder —			
Libau,	100 t.	6 c.	
Antwerp,	15	6	
Drontheim,	10	5	
Rotterdam,	41	9	
Amsterdam,	6	10	
Copenhagen,	26	9	
Christiania,	40	12	
Borax —			
Ergasteria,		2 c.	
Caustic Soda —			
Copenhagen,	7 t.	15 c.	
Genoa,	23	14	
Antwerp,	12	15	
Gothenburg,	8		
Amsterdam,	5	8	
Christiania,	2	18	
Stavanger,	1	4	
Paint —			
Genoa,		2 c.	
Antwerp,		2	
Soda —			
Copenhagen,	3 t.	15 c.	
Antwerp,	5		
Rotterdam,	31	8	
Amsterdam,	26 cks.	680 bgs.	
Nakskov,	14 t.	18	
Laurvig,	10		
Stavanger,	20	19	
Aalborg,	4	7	
Soda Ash —			
Copenhagen,	80 t.	8 c.	
Sodium Hyposulphite —			
Antwerp,	1 t.	19 c.	
Sodium Sulphite —			
Antwerp,	50 t.	2 c.	
Sulphur —			
Christiania,	200 t.		
Tallow —			
Genoa,	4 t.	7 c.	

GOOLE.

Week ending December 30th.

Benzol —			
Boulogne,	48 cks.		
Rotterdam,	144	16 dms.	
Chemicals (otherwise undescribed)			
Ghent,	3 cks.	2 cs.	
Hamburg,	21		
Coal Products (otherwise unaes.) —			
Amsterdam,	75 cks.		
Antwerp,	1		
Boulogne,	1	2 cs.	3 dms.
Hamburg,	46		
Rotterdam,	5	3	
Colours —			
Amsterdam,	1 ck.		
Boulogne,	1	1 cs.	2 pks.
Ghent,	1		
Harlingen,	200 bgs.		
Rotterdam,	2		
Manure —			
Bruges,	182 bgs.		
Ghent,	186		
Pitch —			
Antwerp,	1,102 t.		
Soap —			
Hamburg,		2 cs.	
Rotterdam,		1	

GRIMSBY.

Week ending January 2nd.

Alkali —			
Port au Prince,		500 dms.	
Chemicals (otherwise undescribed)			
Antwerp,	12 cks.		
Dieppe,	4	1 cs.	
Hamburg,	30	20 dms.	
Coal Products (otherwise undes.) —			
Dieppe,	188 cks.		
Hamburg,	4	3 cs.	
Colours —			
Antwerp,	7 tins	5 cs.	2 dms.
Hamburg,	2 cks.	1	
Rotterdam,	1		
Pitch —			
Antwerp,	66 t.		

PRICES CURRENT.

WEDNESDAY, JANUARY 13TH 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	&	8/9
Glacial	"	40/-		
Arsenic S.G., 2000°	"	1	4	0
Fluoric	per lb.	0	0	3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	"	0	0	1½
Oxalic	nett	0	0	3½
Phosphoric, 1750°	"	0	0	11½
Picric	"	0	0	11
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	"	5	10	0
(Pyrites, 168°)	"	3	0	0
(free from arsenic, 145°)	"	1	5	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	"	0	1	1
Arsenic, white powdered	nett per ton	23	15	0
Alum (loose lump)	"	4	10	0
Alumina Sulphate (pure)	"	4	2	6
Aluminoferrous	"	2	5	0
Aluminium (Ingot metal 98/99¼ %)	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	4
" 880=28° B.	"	0	0	2¾
" =24° B.	"	0	0	1¾
Carbonate	nett	0	0	3
Muriate	per ton	19	15	0
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
Nitrate	per ton	33	0	0
Phosphate	per lb.	0	0	4¾
Sulphate (grey) London	per ton	8	2	6
(grey) Hull	"	8	0	0
Aniline Oil (pure)	per lb.	0	0	9¼
Aniline Salt	"	0	0	8½
Antimony	per ton	31	0	0
(tartar emetic)	per lb.	0	0	9¼
(golden sulphide)	"	0	0	10
Barium Chloride	per ton	7	0	0
Carbonate (native)	"	3	10	0
Sulphate (native levigated)	"	42/6	to	65/-
Bleaching Powder, 35 %	nett	6	12	6
Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	13	10	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	"	15/-	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	7
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	9
Benzol, 90 %	per gallon	0	3	4
50/50	"	0	3	0
Carbolic Acid (crystallised 40°)	per lb.	0	0	7½
(crude 60°)	per gallon	0	2	1
Creosote (ordinary)	"	0	0	2
(filtered for Lucigen light)	"	0	0	2½
Crude Naphtha 30 % @ 120° C.	"	0	1	1
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	"	1	8	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	7
" Lucigen " and " Wells " Oils	"	0	0	0
Copper	per ton	50	0	0
Sulphate	"	18	0	0
Oxide (copper scales)	"	45	0	0
Glycerine (crude)	"	37	10	0
(distilled S.G. 1250°)	"	70	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	10	0
Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	13	0	0
Litharge Flake (ex ship)	"	14	10	0
Acetate (white)	"	22	10	0
(brown)	"	15	0	0
Carbonate (white lead) pure	"	16	15	0
Nitrate	"	18	10	0
Lime, Acetate (brown) (ex ship)	per ton	4	17	6
(grey) (ex ship)	"	8	5	0
Magnesium (ribbon and wire)	per oz.	0	2	3
Chloride (ex ship)	per ton	2	7	6
Carbonate	per cwt.	1	17	6
Calcined Magnesia	per ton	8	15	0
Sulphate (Epsom Salts)	per ton	2	15	0
Manganese, Sulphate	"	16	10	0
Borate	per cwt.	2	10	0
Ore, 70 %	per ton	3	10	0
Methylated Spirit, 61° O.P.	per gallon	0	1	8
Naphtha (Wood), Solvent	"	0	2	8
Miscible, 60° O.P.	"	0	2	9
Oils:—				
Cotton-seed	per ton	16	0	0
Linseed	"	17	0	0
Petroleum, American	per gallon	0	0	7
Stearine	per ton	20	0	0
Phosphorus (yellow)	per lb.	0	2	2
(red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
Bichromate	nett	0	0	4½
Carbonate, 90% (ex ship)	per ton	17	15	0
Chlorate	per lb.	0	0	4¼
Cyanide, 98 %	"	0	0	11½
Hydrate (Caustic Potash) 90 %	per ton	24	5	0
(Caustic Potash) 75/80 %	"	20	10	0
(Caustic Potash) 70/75 %	"	20	0	0
Nitrate (refined)	per cwt.	1	1	6
Permanganate	per cwt.	3	17	6
Prussiate Yellow	per lb.	0	0	5¾
Sulphate, 90 % (ex ship)	per ton	9	15	0
Muriate, 80 % (do.)	"	8	10	0
Silver (metal)	per oz.	0	2	5½
Sodium (metal)	per lb.	0	2	11
Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
(Caustic Soda-ash) 48 %	"	4	5	0
(Carb. Soda-ash) 48 %	"	4	0	0
(Alkali) 58 %	"	3	10	0
(Soda Crystals)	"	2	0	0
Acetate (ex-ship)	"	14	5	0
Arseniate, 45 %	"	14	10	0
Chlorate	per lb.	0	0	5
Borate (Borax)	nett, per ton	19	0	0
Bichromate	per lb.	0	0	3¼
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	9	5	0
(74 % Caustic Soda)	"	8	2	6
(70 % Caustic Soda)	"	7	2	6
(60 % Caustic Soda)	"	6	2	6
(pure liquor 90° Tw.)	"	3	15	0
77/78 % powdered (99 % hydrate)	"	13	10	0
Bicarbonate	"	6	10	0
Hyposulphite	"	5	5	0
Manganate, 25 %	"	15	0	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	7	10½
Nitrite, 98 %	per ton	30	0	0
Phosphate	"	12	10	0
Silicate (glass)	per ton	4	10	0
(liquid, 100° Tw.)	"	3	10	0
Stannate, 40 %	per cwt.	3	2	9
Sulphate (Salt-cake)	per ton	1	0	0
(Glauber's Salts)	"	1	10	0
Sulphide	"	6	15	0
Sulphite	"	5	0	0
Strontium Hydrate, 100 %	"	8	0	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	6¼
Barium, 95 %	"	0	0	4½
Potassium	"	0	0	6¼
Sulphur (Flowers)	per ton	7	10	0
(Roll Brimstone)	"	6	10	0
Brimstone: Best Quality	"	4	15	0
Superphosphate of Lime (26 %)	"	2	15	0
Tallow	"	18	5	0
Tin Crystals	per lb.	0	0	4¼
English Ingots	per ton	63	10	0
Zinc Spelter	"	17	17	6
Chloride (solution, 100° Tw.)	"	5	2	6

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

505.

SATURDAY, JANUARY 23. 1897.

Vol. XX.

Contents.

PAGE	PAGE
Topics	77
Supply of London	78
Mining in America	78
List	79
of Latest Complete Speci-	
.....	79
Memoranda	80
and Irwell Joint Committee	80
tion of Black Smoke	81
of Alkali and Bleach	81
and Exports for December	81
er Use in Agricultural	82
.....	82
ical Trade of New York	83
.....	83
The Ribble Joint Committee.....	83
Alumina v. Ferric Salts for Sewage	84
Trade Notes	84
Tar and Ammonia Products	84
Report on Manure Material	85
Miscellaneous Chemical Market ..	85
The Metal Markets	85
Liverpool Oil and Colour Market ..	85
West of Scotland Chemicals	85
Tyne Chemical Report	85
Hull Paint, Oil, and Colour Report	86
New Companies	86
Imports	86
Exports	89
Prices Current	92

ADVERTISEMENT.

SALE.—9 Egg-ended Cylindrical Boiler Tanks
8 to 35 ft. x 5; Circular Tank—10 ft. x 17 ft.; all in splendid condition.—
Thomas W. Ward, Sheffield.

Notices.

communications for the *Chemical Trade Journal* should be
ed, and Cheques and Post Office Orders made payable to—
DAVIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, to the
Chemical Trade Journal,—payable in advance,—including postage
part of the world, are as follows:—

Early (52 numbers) 12s. 6d.
Half-Yearly (26 numbers) 6s. 6d.
Quarterly (13 numbers) 3s. 6d.

Subscribers will oblige by making their remittances for subscriptions by
Post Office Order, crossed and payable to "Davis Bros."

Reports, and correspondence on all matters of interest to
chemical and allied industries, home and foreign, are solicited.
Contributors should condense their matter as much as possible,
on one side only of the paper, and in all cases give their names
and addresses, not necessarily for publication. Sketches should be
on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let,
Persons Wanted, and Special Articles for Sale by Private Contract are
inserted in the *Chemical Trade Journal* at the following rates:—

30 Words and under 2s. 6d. per insertion
Each additional 10 words 6s. 6d.

Advertisements of Situations Wanted are inserted at one-half the
rates when prepaid, viz.:—

30 Words and under 1s. 6d. per insertion
Each additional 10 words 6s. 3d.

Advertisements, Announcements in the Directory Columns, and all Adver-
tisements not prepaid, are charged at the Tariff rates, which will be forwarded on

Advertisements intended for insertion in the current week's issue
must reach the office by **Thursday morning** at the latest.

CURRENT TOPICS.

THE KENTISH COAL FIELD.

THERE is no telling what changes time may bring, and
this would veritably seem to be the case in regard to
the present development of the Kent coal basin.

We have already dealt more or less with the progress that
is being made with the shafts at Shakespeare Cliff, and it
appears that headway is being steadily made. The coal seam
it is proposed to work is, it will be remembered, a deep one,
and it is not probable that the full bore shaft can be carried
down to it before April or May of this year, but while this
shaft sinking is in progress a number of incidents of general,
as well as commercial, interest are to be noted.

The power and pumping plant is fast being placed on the
ground, while the chimney stack has been contracted for.

From time to time, in parrying the good humoured chaff of
strangers to the waste heaps of Widnes and the miniature
slack and slag mountains of the Midlands, we have often
taken refuge behind the suggestion that there was no knowing
but what the gentle undulations that relieve the landscape of
the South Downs were only grass grown "tips." And
supposing the contrary, we have taunted our would-be
tormentors by pointing out how it was possible, in the course
of time, that it might be our turn to cite the beauties of
the erstwhile industrial centres of Lancashire and the
Midlands, in contrast to the disfigurements of the Southern
counties.

We have never used these arguments seriously, but, on the
principle of any port in a storm, they have served their turn,
only, it would seem, to have at last passed from the region of
pure fancy into the realm of reasonable possibility.

Now that coal is almost to hand in Kent, there is some
talk of once more establishing ironworks in Sussex.

Up to 1720 this county was one of, if not the principal,
centres of iron manufacturing in England, the iron rails
round St. Paul's Cathedral having been cast in Sussex.
The last furnace was extinguished at Ashburnham in the
year 1828. The fuel used for smelting was wood, but as the
county became denuded of timber, Acts of Parliament were
passed prohibiting the furnaces, and the manufacture of iron
went northwards to the coal centres. It has only been the
question of the price of coal which has prevented iron ore
being worked in Sussex.

This presents a prospect that will have to be looked at
from a good many viewpoints before its probable influences
on the existing state of the iron trade can be rightly gauged.

Coming back, however, to things that are of more immediate
interest, the samples of coal that have been brought to the sur-
face have upon experiment proved most satisfactory as regards
their analytical and calorimetric tests, and on the strength
of these results the Syndicate at present engaged in sinking
the two new shafts are desirous of making more extensive

borings to test the area of the new coal basin, which it is supposed has been struck. This Syndicate was really an offshoot of the Channel Tunnel Company, whose main project is virtually in abeyance for the nonce, but the parent company last week separated the coal enterprise for business reasons, so that the Kent Coalfields Syndicate, Ltd., is now on an independent basis. They are also transferring some of their land to the South-Eastern Railway Company, and their mineral rights to the Syndicate.

The arrangements in connection with the proposed extension of trial borings are so far advanced that one boring at least will most likely be started soon. It is proposed to work in a westerly direction through Ashford, Tunbridge and beyond.

The terms proposed by the Syndicate are reasonable, as they offer to bear the entire cost of the borings on the condition that not less than 3,000 acres shall be secured round any site selected, while, should a colliery be opened, the land-owners must be agreeable to lease their mineral rights for 60 years on terms similar to those made with the Ecclesiastical Commissioners and other owners at the Dover colliery—which terms are equal to a royalty of 9d. or 1s. per ton on the coal raised.

If the outcome of these borings are in accordance with the expectations of the geologists who have been studying the district, there will probably be some interesting industrial departures to record by this time next year.

THE EAST HAM NEGLIGENCE CASE.

About three months ago we referred to the decision of Mr. Justice Cave in this instructive negligence case, which arose out of a "gassing" fatality in July last.

Though disposed to hold our own opinion on the merits of the case, we then did not fail to appreciate the fact, that as a matter of law the decision might have been all right.

At the same time a word of warning was given, on the ground that whatever the end of this particular case might be, there would in future be less excuse, as the dangers of gaseous poisoning and their treatment would before long be more fully known and provided for.

It may be as well to refresh the memory by re-stating that the widow of a man named Digby sought to recover damages for the death of her husband, and although she was non-suited, we suggested that the case had at least shown how danger was to be apprehended, the absence of which apprehension was a strong point in Mr. Justice Cave's summing up.

We were evidently not alone in this opinion, for it appears that the case was carried to the Court of Appeal, where the Master of the Rolls and Lords Justices Lopes and Rigby unanimously decided that the case had not been satisfactorily tried, and ordered a new trial.

It will be most interesting to see how the second trial goes, and if carried to finality it will prove an important test case. As it is much good has been done by the attention it has already drawn to this question of sewer gas poisoning, which is all too lightly considered by the majority of public authorities and corporations.

WEAK RUM.—At the Manchester Police Court, recently, Frederick Smart, licensee of the Ogden Arms Hotel, Sackville-street, was fined £5. and costs for selling rum three degrees under the standard of proof allowed by law. Mr. Rook, superintendent of the Sanitary Department of the Corporation, prosecuted.

EXPLOSION AT A BLAST FURNACE.—An explosion occurred on Monday at Seaton Carew blast furnaces, near Hartlepool. A new furnace had been erected and a dozen men were engaged in unpacking clay from one of the tuyeres, when the explosion took place. Nine of the men were scalded and burned. Seven of them were removed to the hospital, where five remain.

THE WATER SUPPLY OF LONDON.

AT a meeting of the London section of the Society of Chemical Industry, held at the Chemical Society's rooms, Banbury House, on Monday, Mr. W. J. Dibdin read a paper on "The City of the London Water Supply." Dr. Messel presided. Mr. Dibdin explained that the main object of the paper was to point out improved methods employed by him in the course of a series of analyses which he had recently been called upon to make of London water. The analyses brought into prominence a point of interest which had hitherto been to a great extent overlooked—*i.e.*, that the matters held in suspension, in presumably pure waters, although in quantity, were yet often of such a kind as to throw considerable light upon a sample of water, even after the old methods of filtration failed to distinguish the difference between one sample and another. Having described the process adopted, he submitted a number of slides showing the relative quantities of suspended matter in the various supplies, and compared the results by the micro-filter and gravimetric method. The practically complete coincidence between the various methods of examination was very striking. The unpurified river water contained a mass of matters of generally indefinite character included under the head of *debris*; but, in addition to these, noticeable features were distinct, amongst which diatomaceæ were dominant; entozoic worms, various dyed and undyed textile fibres such as wool, cotton, silk, etc., were not infrequently met with; numerous infusoria and bacteria. The results of the examination of filtered supplies indicated the frequent presence of all these substances. Diatoms were almost always present, and not infrequently abundant; also; but the most noticeable and objectionable feature was the presence of fragments of matter in a state of decomposition and decay, including bacteria. The presence of such particles could not be as inevitable in the case of a pure water supply. From the experience now obtained it would seem as if the number of bacteria determined more upon the quantity of suspended matter than on any other factor. The examination of the daily samples of water for the number of bacteria had yielded interesting results, and afforded further evidence of the improvement effected in the various filtered supplies. Mr. Dibdin submitted tables showing the improvement between 1892 and 1895, and the further improvement in the course of last year. Proceeding to compare the present London supply with the proposed supply from Wales, remarking that from a comparison of the average results of nearly 3,000 analyses it was evident that the organic impurities in unfiltered Welsh water was a little less than that in the average London water. The unfiltered Welsh water examined on 11 occasions contained 26 microbes per cubic centimetre, whilst the average of filtered waters contained in summer 167, and in winter 298, the supply containing 90. By the adoption of Clarke's system of softening the present supply, in respect of its chemical quality and number of bacteria, would be improved to a degree comparable with that of the Welsh sources.

BAUXITE MINING IN AMERICA.

THE industry of mining bauxite has been prosecuted during the last few years by the same companies which have been engaged in it since the Republic Mining and Manufacturing Company, the S. Bauxite Company, and the Georgia Bauxite Company. While shipments have aggregated only some 15,000 tons as against 18,000 in 1895, yet they all express themselves satisfied as to the year's business. There have been no new discoveries of bauxite mines reported since the opening of a deposit by the Alabama Mineral Land Company at Anniston can be considered a new discovery. Really this was the first discovery made in the State, but no attempt had been made until the spring of 1896 to develop it, and determine the grade, ore and extent of the deposit. Recently published newspapers have stated that extensive bauxite properties, northerly from Ga., had been purchased by New York capitalists, and would be developed during 1897. The demand for this mineral still remains quite keen, but if an export trade would result profitably to the shippers, the probabilities are that such a business could be built up.

One shipment was made during 1896 to Germany, but what will be followed up cannot at present be learned. The deposits have produced the bulk of the shipments since 1891, and are in Cherokee County, Ala., have been the main producers in the year. While it can hardly be stated that the ore bodies are inexhaustible, yet they are certainly holding out better than a great many anticipated would be the case, and so far as developed these show large quantities of ore yet in reserve.

The custom of shipping the ore in its crude state after being sun-dried for a short period, is being discontinued, and various kilns have been erected at the different mines for the purpose of drying the ore with artificial heat preparatory to shipping. The

Company has adopted the policy of washing a portion of its ore by passing it through an ordinary double log washer before sending it to the kiln to be dried. Because of this, that company has been enabled to ship a vast quantity of bauxite of high grade from the waste dumps which had accumulated from screenings. Whether washers will be put in by the other companies or not cannot be stated at present, but from the appearance of the dumps there has not apparently been as great a loss of bauxite in the Cherokee County district in Alabama as there was in the Barnsley district in Bartow County, Ga., where the Georgia Bauxite Company operates.—*Engineering and Mining Journal*.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Muffle Furnace. S. Shail. 154. January 4.
Apparatus for Preventing Scale in Boilers. B. Waddicar. 170. January 4.
Manufacture of Sulphuric Acid. G. Cipri. 204. January 4.
Improved Bunsen Gas Burners. H. Marshall. 238. January 5.
Treating Smoke to Extract Carbon and Residual Products. W. M. Ward. 262. January 5.
Producing Alcohol from Dried Fruit. J. Jaquemin, W. A. Owston, and G. J. Newman. 275. January 5.
Recovering Lead, etc., from Refractory Zinc Blend Ores. H. R. Angel. 272. January 5.
Improved Cement. A. Calladine. 322. January 5.
Cyanides, etc., from Blast Furnace Gases. A. K. McCosh. 381. Jan. 6.
Apparatus for Burning Liquid Fuel. A. A. Humphrey. 409. January 6.
Smoke Consuming Furnaces. K. Marek. 416. January 6.
Iodine, etc., from Seaweed. A. James. 422. January 6.
Paint, etc., Strainers. W. Palmer. 438. January 6.
Improved Sheep Dip. R. Mackill. 448. January 7.
Sewage Tanks and Sludge Removing Apparatus. W. Bagshaw. 452. January 7.
Electrolytic Apparatus for Treating Alkaline Salts. A. Koch. 498. January 7.
Recovering Zinc from Alloys and Waste. S. Shaw. 531. January 8.
Treating Argentiferous Lead. S. Shaw. 560. January 8.
Candle Moulding Machines. W. H. Day and W. Murch. 579. January 8.
Oil Press Plant. L. H. and J. G. Mathysen. 582. January 8.
Manufacture of Starch. A. Ansoorge. 586. January 8.
Manufacture of Caustic Soda or Potash from Carbonate of Soda or Potash. P. J. Worsley and The United Alkali Co., Ltd. 591. January 8.
Electrolytical Production of Ozone. E. Böhm. 615. January 9.
Improved Filters. A. E. H. Lozé. 618. January 9.
Improvements Relating to Explosives. W. Greaves and E. M. Hann. 651. January 9.
Apparatus for Purifying Sewage, etc. W. M. Ducat. 654. January 9.
Preparing Alkylated Uric Acids. J. Y. Johnson. 656. January 9.
Reducing Zinc Blend and other Ores to obtain Lead, etc. H. R. Angel. 662. January 9.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

These abstracts are specially prepared for the Chemical Trade Journal, and ALL RIGHTS of publication are RESERVED. This is the earliest series of abstracts of Chemical and allied patents accessible to the public.

Improvements in and Relating to the Discharging of Salts and the like from Evaporators. J. Foster, 11, St. Andrew's-drive, Pollokshields, Glasgow. Eng. Pat. 928. January 14. 1896.

The automatic discharge is obtained by means of a discharging and an outlet valve working in unison. At one end of the horizontal pump barrel there is a spring valve which opens outwards. As the pump plunger recedes, the salts are discharged from the evaporator and fall into the barrel. On the return stroke they are expelled by the plunger, under the force of which the spring valve opens. Particulars of the mechanism for actuating the valves are given, and illustrated with seven drawings.

Improvements in Sewage Precipitation Tanks. H. Walker, Newcastle Chambers, Angel-row, Nottingham. Eng. Pat. 9,002. May 6, 1896.

The tank is cylindrical, with a sloping bottom, which runs about halfway up the tank at one point of the circumference, and declines concentrically to a point exactly opposite, so as to form a kind of well into which the sludge gravitates. The sewage enters through a fall pipe from the mixing race, about halfway down the sloping bottom, and, gradually rising, overflows the edge of the tank and escapes to the

filters, or land. A pipe, provided with facilities for cleaning, passes from the deepest part of the tank to a short distance below the effluent overflow sill. By opening the valve on this pipe the sludge is discharged by the weight of the supernatant liquid in the tank. When the sewage contains fat, etc., a scum wall is added.

Apparatus and Process for the Purification, Softening or Hardening of Water for Domestic, Manufacturing, and other Purposes. J. H. Williams, 16, Percy-terrace, Waterford. Eng. Pat. 821. January 13. 1896.

Three tanks, arranged one above the other, and fitted with loose legs and ball valves, are employed. A hollow carbon, etc., filter is placed in the bottom tank when required, an aerating tube being connected to the filter. In the top tank the water is suitably treated with calcium sulphate, alum, permanganates, or other precipitants, and when ready is drawn off into tank number two. In this borax, sodium carbonate, or other neutralizer is added, and the water finally passed into the storage and filtering tank. For certain purposes the filtering can be dispensed with.

Improvements in the Manufacture of Ferrocyanides from Sulphocyanides. J. T. Conroy, F. Hurter, and J. Brock, all of Gt. Exchange-buildings, Liverpool. Eng. Pat. 3,869. February 20, 1896.

Sulphocyanide of calcium is decomposed with an iron salt, and then treated with metallic iron at a high temperature to decompose the sulphocyanide (*vide* patent 361/96, *C. T. J.* 504, p. 36).

The solution of calcium sulphocyanide is mixed with about 1½ equivalents of ferrous chloride solution. The solutions should not be too concentrated. The mixture practically consists of ferrous sulphocyanide and chlorides of calcium and iron. This is treated with fine metallic iron in an autoclave, under a pressure of 50 lbs. to 60 lbs. per square inch, and heated to a temperature of 270° to 280°F., the contents being agitated the while. If iron filings are used about six times the theoretical quantity must be used. Preference, however, is given to iron obtained by reducing the oxide without fusion with carbon monoxide or other reducing gas. When the reaction is complete the contents are discharged hot, the precipitate separated, and washed free from calcium chloride. It then consists of ferrous sulphide and cyanide of iron, the latter being extracted by a hot 20° to 40° Tw. lye of caustic soda. When potash is used the ferrous sulphide is first removed with hydrochloric acid, and the ferrocyanide of potassium subsequently obtained. The precipitate left from the soda treatment is dissolved in hydrochloric acid to form ferrous chloride, which can be used *de novo*. In the case of potash treatment this has already been done. In any case, the precipitate is filter-pressed as dry as possible, and strong acid used, so as to produce the ferrous chloride in as concentrated a form as possible.

An Improvement in Galvanising. R. Heathfield, 1, Leadenhall-buildings, and W. S. Rawson, 21, Greycoat-gardens, Victoria-street, London. Eng. Pat. 24,703. December 24, 1895.

In the electrolytic galvanising of iron plates bare places frequently occur. These are cleaned by mechanical means and an acid bath, and the sheets then dipped in a bath of zinc chloride, dissolved in pyrophosphate of soda. The bath should be cold at first, and gradually heated. If the bare spots are to be "skinned" only, and finished by the electrolytic process, ten minutes will suffice, otherwise the immersion should last half an hour. The deposition should not be made too rapidly.

Obituary.—It is with great regret we have to record the death of MR. JOSEPH D. WEEKS, editor of the *American Manufacturer*, who died on December 26th, at Pittsburg, Pa., a few hours after being stricken with apoplexy. It is only a few months back that Mr. Weeks called at the *Journal* office for a chat while on a visit from "the other side." He was born in Lowell, Mass., in 1840, and after finishing a scientific course of study at Wesleyan University, Middletown, Conn., followed the ministry. After the war he went to Cincinnati and later became a newspaper writer. In 1872 Mr. Weeks went to Pittsburg, and became connected with the *American Manufacturer*, with which the *Iron World* was soon afterwards consolidated. In 1875 he became associate editor of the *Iron Age*, and for ten years had charge of the Western department of that journal. In 1883 he became secretary of the Western Pig Iron Association, which work he has carried on ever since. In 1886 he assumed control of the *American Manufacturer*. For the United States Census of 1880 Mr. Weeks prepared the facts entitled "The Manufacture of Coke" and "The Manufacture of Glass." In 1885, he began his work for the United States Geological Survey, making reports yearly on the manufacture of coke, petroleum, natural gas and the production of manganese. For the census of 1890 he prepared three reports—Crude Petroleum, Natural Gas and Manganese, and in the Department of Manufactures three reports—Coke, Glass, and a work on Petroleum Refining—the latter being the first of its kind ever published by the Government.

Official Memoranda.

(From the Board of Trade Journal.)

CUSTOMS TARIFF OF ST. LUCIA.

The following is an abstract of the import and export duties now in force as communicated by the Administrator of the colony:—

		£	s.	d.
Candles (Tallow)	per lb.	0	0	1
Candles (other sorts)	"	0	0	2
Cement	brl.	0	1	6
Indigo	per lb.	0	0	6
Lime Building	brl.	0	0	6
Oils, including linseed, cottonseed, naphtha, olive, and sperm, but excluding essential and medicinal oils	gall.	0	0	6
Oilcakes and Meals	100 lbs.	0	0	9
Petroleum (crude or refined)	gall.	0	0	2½
Pitch, Rosin, and Tar	brl.	0	2	6
Salt (Coarse)	"	0	0	9
Salt (Table)	100 lbs.	0	1	0
Soaps (Fancy)	"	20%	ad val.	
Soaps (Plain and other sorts)	100 lbs.	0	2	6
Tallow	"	0	2	6
Spirits of Turpentine	gall.	0	0	6

EXEMPTIONS.

For Sugar Manufacture:	For any purpose:
Filter Presses	Belting, all kinds
Charcoal	Bones and horns
Sulphur	Electrical Apparatus
Chemicals	Fertilizers, all kinds.

RECENT TARIFF CHANGES.

CARBORUNDUM imported into Russia in pieces and powder is to be cleared, as a chemical product not specially mentioned, under Section 112: Duty, 1 rouble (of 100 copecks = 4s. 2d.) 50 copecks gold per pound (36 lbs.). Polished sheets of carborundum, to be cleared under point 3 of Section 71: Duty, when on paper, 1 rouble 20 copecks, and when on linen, 1 rouble 80 copecks per pound. Carborundum, rounds, oblong blocks, plates and files to be cleared under point 4 of Section 71: Duty, 4 roubles gold per pound.

METHYLATEDS.—The Consul at Paramaribo (Guiana) states that the practice amongst the natives of using alcoholic spirits of local manufacture for illuminants as stimulants has given the Colonial Government of Dutch Guiana much concern. In order to check this habit the mixture of a mineral methylic alcohol with the methylated spirits manufactured there has now become compulsory. The authorised methylators—methylic alcohol and benzine—are now exempt from import and excise duty.

POTASSIUM CYANIDE AND ASBESTOS.—The Natal executive have fixed the following transit rebates:—That a rebate shall be allowed to the extent of the difference between the present transit duty and £3. per cent. *ad val.* on cyanide of potassium and other chemicals for use in the extraction of metals from ores, and the difference between the present transit duty and 1s. 3d. per 1,000 on detonators, and the difference between the present transit duty and ½d per lb. on dynamite, imported or warehoused on importation into Natal whenever such goods shall be so removed overland. All the dues on asbestos are rebated in transit.

THE NITRE TRADE AT TRIESTE.

A report has been received at the Foreign Office from Mr. J. G. Haggard, Her Majesty's Consul at Trieste, to the effect that an entirely new departure in the Trieste import trade is the recent introduction of nitre from Chile in Austrian bottoms. It is the first venture there in this article of commerce, but is one likely to be repeated, the supply of a great territory being aimed at, for which large tonnage is already reported to be afloat. Hitherto this demand has been met from other directions, and this deviation of the traffic is likely to prove of some importance in the trade.

BET SUGAR IN SILESIA AND POSEN.

The *Journal Official* states that the beet crop in some districts has exceeded calculations, but in many others has not reached the estimated amount. In Silesia, the crop of sugar-beets was considerably less than that of the preceding season.

The manufactures of this province consumed 15,385,000 quintals of beets, as against 13,762,531 quintals in 1895-96.

The Posen manufactures consumed in 1896-97, 15,770,000 quintals, as compared with 15,083,267 in 1895-1896.

MINERAL PRODUCTION OF SWEDEN.

According to Swedish official mining statistics for the year 1895, the amount of rock ore worked in that year was as follows:—Iron ore, 1,901,971 tons; gold ore, 459 tons; silver and lead ore, 12,045 tons; copper ore, 26,009 tons; zinc ore, 31,349 tons; manganese ore, 3,117 tons; iron pyrites, 221 tons. The lake and marsh ores (amounting to 2,691 tons) are not included in the above figures, so that the total production of iron ore was 1,904,662 tons.

With regard to the production of metals other than iron during 1895, the amounts were as follows:—Gold, 85 kilograms; silver, 1,188 kilograms; lead, 1,256,079 kilograms. (an increase of 925,716 kilograms, as compared with 1894); and copper, 216,305 kilograms. (a decrease of 133,594 kilograms.).

Among the other mineral substances worked were—sulphate of copper, 1,195,408 kilograms; sulphate of iron, 94,125 kilograms; red ochre, 1,290,970 kilograms; alum, 286,284 kilograms; and graphite, 6,912 kilograms.

The number of workmen employed in the mines and furnaces in 1895 was 26,284, or 832 more than in 1894. Of these, 5,499 men and 227 children under 18 years of age were employed underground, and 18,152 men, together with 2,406 women and children under 18 at the surface.

THE INTERNATIONAL INDUSTRIAL EXPERIMENTAL UNION.

A communication has been received at the Foreign Office from the Director of the "International Union for making Experiments connected with Manufactures" (*Association Internationale pour l'essai des Matériaux*, Berlin), enclosing copy of the regulations of the Union, from which it appears that it was established with the object of developing and assimilating the tests of materials used in building, and other materials, as well as the improvement of methods relating to manufactures. This object is to be attained by—1. Congresses and conferences of the Association; 2. The issue of a journal by the Association; 3. Other measures and steps which may be considered as furthering the object of the Association.

MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held last week at the office, Mosley-street, Manchester. Mr. Alderman J. Thompson presided in the unavoidable absence of the chairman. The substitution of Mr. Alderman McDougall on the Committee *vice* the late Mr. Alderman Clay was duly notified by the Clerk.

The Consulting Sub-committee reported that the clerk had laid before the Sub-committee a report upon the provisions of the Manchester Corporation Bill, 1897, so far as they affected the jurisdiction of the Joint Committee. He called attention to those provisions of the Bill which related to the new scheme for dealing with the sewage of the city, and in particular to clause 25 of the Bill, which provided that "the Corporation may discharge into the River Mersey from and out of the effluent conduit and other works by this part of this Act authorised, or some of them, the effluent from the sewage works of the Corporation at Davyhulme." That clause, Mr. Hulton reported, "requires careful consideration, as its language is very vague. No provision is made in it that the effluent, either when turned into the effluent conduit at Davyhulme or when discharged into the River Mersey at Thelwall, shall be satisfactory, or such as the Joint Committee would allow. On the contrary, it would rather appear that whatever may be the condition of the effluent at Davyhulme, no further treatment is intended between that place and Thelwall, and a statutable right to pour it into the river is sought to be obtained, notwithstanding that during its course of 9½ miles serious secondary decomposition may and, as I am advised, most probably will arise, to the detriment of persons living lower down the river." Having regard to the purposes for which the Joint Committee was constituted, he was of opinion that clause 25 should be so amended as to make it clear, and to specifically provide that the effluent, whether at Davyhulme or at Thelwall, should be subject to the provisions of the Rivers Pollution Prevention Act, 1876, and the Mersey and Irwell Joint Committee Act, 1892, and to attain this object he recommended that a petition be presented against the Bill praying that the clause might be amended accordingly. The Sub-committee recommended that that opinion be adopted, and that a special sub-committee, consisting of Sir J. T. Hibbert (chairman), Mr. V. K. Armitage, Mr. T. W. Killick, and Dr. Hewitt, be appointed to superintend the opposition to the Bill in Parliament.

In answer to Mr. Cheetham, the Clerk said that Thelwall was two miles and a half within the jurisdiction of the Committee.

Dr. Hewitt said he understood the clerk to say that he had a doubt whether, if the Bill passed, although Thelwall was in the Committee's district, it would not confer a statutory right to put sewage in without conforming to the regulations of the Committee.

The Clerk said that that was his opinion.

Mr. T. W. Killick thought the duty of the Committee was absolutely clear and distinct. The Committee had unanimously come to the conclusion that they should accept the opinion of their clerk and act upon it.

The Chairman said though he should not vote upon the question, it was, he thought, right that he should say a few words. He quite understood that the Committee should feel it to be its duty to oppose the Corporation Bill, but at the same time he thought it only right, on behalf of the Corporation, that they should place themselves in a true position. The Corporation had no desire to shirk their responsibilities, but they had to show that they could not do impossibilities. They had spent a very large sum of money already in endeavouring to comply with the requirements of the Committee. It must be remembered that the Manchester Corporation was placed in a position very different from any other town or borough or manufacturer in the watershed. The Corporation were largely interested in the success of the Ship Canal, and had shown their interest in it by lending a sum of £5,000,000. They had this responsibility resting upon their shoulders, and the rate-payers naturally and rightly expected that their interests should be safeguarded. The Corporation of Manchester had to look after their own interests in the matter, and he was not saying a word too much when he said they also represented the vital interests—

Mr. V. K. Armitage appealed to the Chairman himself on a point of order. Was it right that the chairman of the Joint Committee should sum up in the interests of the delinquent in the case they were now trying? Surely not. He appealed to the chairman of the Joint Committee, and not to an alderman of the city of Manchester, to decide the point.

The Chairman said he did not intend to vote, and he had said he thought it was only natural that the Committee should take the course it felt bound to take; but he thought he might have explained, on behalf of the Corporation, what their position was. However, he did not wish to press the matter if there was any feeling that, as the acting chairman, he was acting *ultra vires*, or going a little beyond his privileges. He did not desire to say one word disrespectfully of the Committee, or to place the Corporation in a more favourable position than any other Corporation or private manufacturer in the watershed.

Mr. Alderman M'Dougall moved as an amendment: "That notice of opposition to the Manchester Bill be deferred until the suggestion now made by Dr. Hewitt be considered by the Manchester Corporation."

Dr. Hewitt doubted whether the Committee could spare the necessary time. Subsequently a division was taken, when there voted for the amendment Messrs. Aldermen Southern, Smith, and M'Dougall, and against it, twelve members of the Committee. The amendment was declared to be lost, and the resolution was then put and adopted. It was also resolved that the special sub-committee named in the report to superintend the opposition to the Bill should be appointed.

RE-APPOINTMENT OF THE CHEMICAL ADVISER.

The meeting resolved, after debate, to adopt the recommendation of the Chemical Sub-committee that, upon the expiration of the current term, Sir Henry Roscoe be re-appointed chemical adviser to the Joint Committee for one year, upon the same terms as last year—namely, at a salary of £725., such sum to include travelling expenses.

THE EMISSION OF BLACK SMOKE.

AS a vacancy has arisen in the Bradford ward, through the elevation to the aldermanic bench of the Manchester City Council of Councillor James Tunstall, a meeting of the members and workers of the Conservative clubs of Bradford, Beswick, and Clayton, was recently held at the Central club, Grey Mare-lane, Bradford, Manchester, for the purpose of selecting a candidate to fill the vacancy. There was a very large attendance. Mr. R. Le Neve Foster presided. A lengthy discussion took place as to the necessity of electing to the Council a representative who would be able to bring his influence to bear on his colleagues to obtain some relief from the pressure placed upon the manufacturing portion of the community by the officials of the Manchester Corporation through their instituting incessant prosecutions for offences against the Smoke Abatement Acts, which had not only had the effect of preventing many firms from making extensive additions to their premises (the chairman pointing out one case where the parties were prepared to lay out from £10,000. to £20,000.), but had also caused others to close their works altogether, thereby greatly interfering with the prosperity of the district. The chairman, Mr. Hugo Shaw, Messrs. Chappel, Whitehead, Shaw, and others took part in the discussion. It was ultimately resolved, on the proposition of Mr. Fred Chappel, seconded by Mr. Hugo Shaw, that Dr. Dreyfus, of the Clayton Aniline Company, should be adopted as the candidate for the next vacancy in the ward, that gentleman having intimated his willingness to contest the seat.

EXPORTS OF ALKALI AND BLEACH.

THE following returns, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries for month of November, 1896, as compared with 1895:—

ALKALI.				
Port.	1895.	1896.	1895.	1896.
	Cwts.	Cwts.	£	£
Russia	13,735	28,832	4,269	8,996
Sweden and Norway	17,856	8,988	4,060	1,805
Germany	11,141	10,554	2,998	2,693
Holland	18,139	11,686	2,359	2,295
France	3,561	3,676	1,259	1,363
Spain and Canaries	20,826	23,490	7,194	8,339
Italy	15,742	23,172	5,257	6,235
United States	394,857	192,728	86,352	44,381
Australasia	13,320	9,440	3,997	2,437
British North America ..	41,786	22,496	10,373	5,960
Other countries	93,173	79,718	27,489	22,657
Total	644,136	414,780	155,607	107,161

BLEACHING POWDER, ETC.				
Port.	1895.	1896.	1895.	1896.
	Cwts.	Cwts.	£	£
United States	88,291	67,823	30,323	22,536
Other countries	49,892	43,351	16,872	14,892
Total	138,183	111,174	47,195	37,428

IMPORTS AND EXPORTS FOR DECEMBER.

THE Board of Trade returns for the last month of 1896 were generally most pleasing, and as regards the chemical, &c., trades, encouraging. The imports of chemicals and dyestuffs, particularly indigo, were less in value. Oils show a net increase, though turpentine and palm oil were less. Tallow was less in value and quantity. In the exports alkali shows no improvement, but paper, manures, and salt were better.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE

ARTICLES.	Quantities.	
	1895.	1896.
Margarine	Cwt. 87,884	89,689
Copper Ore and Regulus	Tons. 17,930	13,065
Pyrites	" 54,022	47,744
Tin	Cwt. 86,065	69,890
Alkali	" 13,109	26,754
Brimstone	" 24,938	10,611
Dyes, Coal Tar	£ 59,992	61,995
Sulphur	Cwt. 18,239	26,276
Petroleum	Gall. 17,706,755	24,794,833
Turpentine	Cwt. 51,881	38,944
Guano	Tons. 1,718	4,186
Nitrate of Soda	" 3,352	5,288
Paraffin	" 55,902	85,465
Rosin	Cwt. 66,891	159,091
Tallow and Stearine	" 191,833	99,217
Oil Seed Cake	Tons. 29,916	302,40
Wood Pulp	" 34,789	35,573

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1895.	1896.
Alkali	Cwt. 500,273	456,534
Cement	Tons. 28,168	28,813
Coal and Coke	" 2,468,392	2,565,193
Copper, all kinds	Cwt. 128,897	63,877
Iron and Steel	Tons. 220,579	283,156
Chemical Manures	" 19,987	23,150
Oils, seed	" 3,614	4,298
Salt	" 48,713	61,135

SOCIETY OF CHEMICAL INDUSTRY: Nottingham Section.—The third meeting of the session will be held on Wednesday, Jan. 27th, at The Station Hotel, Burton-on-Trent, at 7.30 p.m. Business: 1. Discussion on the Chairman's address—"The Commercial position of Sulphate of Ammonia." 2. A note on Kjeldahl's process, by Jas. O'Sullivan, F.I.C. 3. A note on Maltose, by Jas. O'Sullivan, F.I.C.

TABLES FOR USE IN AGRICULTURAL ANALYSIS.

ALL RIGHTS RESERVED.

(Continued from p. 68.)

THE method of using the following table was given in the *Journal* last week. It is a continuation of the table for nitrogen and ammonia in fishmeal and such like nitrogenous fertilizing materials. As the title suggests, it shows at once the percentage of albuminoids which it is generally necessary to state in the analysis of, say, a decorticated meal.

Example:—To save further detail, the number of cubic centimetres of acid consumed by the Kjeldahl titration will again be assumed as being 54.6 c.c. Taking the whole number in the left hand column, and the decimal in the top horizontal column, we see at once the percentage of albuminoids is 47.77%.

TABLE FOR ALBUMINOIDS.

USING ONE GRAM SAMPLE.

C.C.	0	1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
11	9.62	9.71	9.80	9.89	9.97	10.06	10.15	10.24	10.32	10.41
12	10.50	10.59	10.67	10.76	10.85	10.94	11.02	11.11	11.20	11.29
13	11.37	11.46	11.55	11.64	11.72	11.81	11.90	11.99	12.07	12.16
14	12.25	12.34	12.42	12.51	12.60	12.69	12.77	12.86	12.95	13.04
15	13.12	13.21	13.30	13.39	13.47	13.56	13.65	13.74	13.82	13.91
16	14.00	14.09	14.17	14.26	14.35	14.44	14.52	14.61	14.70	14.79
17	14.87	14.96	15.05	15.14	15.22	15.31	15.40	15.49	15.57	15.66
18	15.75	15.84	15.92	16.01	16.10	16.19	16.27	16.36	16.45	16.54
19	16.62	16.71	16.80	16.89	16.97	17.06	17.15	17.24	17.32	17.41
20	17.50	17.59	17.67	17.76	17.85	17.94	18.02	18.11	18.20	18.29
21	18.37	18.46	18.55	18.64	18.72	18.81	18.90	18.99	19.07	19.16
22	19.25	19.34	19.42	19.51	19.60	19.69	19.77	19.86	19.95	20.04
23	20.12	20.21	20.30	20.39	20.47	20.56	20.65	20.74	20.82	20.91
24	21.00	21.09	21.17	21.26	21.35	21.44	21.52	21.61	21.70	21.79
25	21.87	21.96	22.05	22.14	22.22	22.31	22.40	22.49	22.57	22.66
26	22.75	22.84	22.92	23.01	23.10	23.19	23.27	23.36	23.45	23.54
27	23.62	23.71	23.80	23.89	23.97	24.06	24.15	24.24	24.32	24.41
28	24.50	24.59	24.67	24.76	24.85	24.94	25.02	25.11	25.20	25.29
29	25.37	25.46	25.55	25.64	25.72	25.81	25.90	25.99	26.07	26.16
30	26.25	26.34	26.42	26.51	26.60	26.69	26.77	26.86	26.95	27.04
31	27.12	27.21	27.30	27.39	27.47	27.56	27.65	27.74	27.82	27.91
32	28.00	28.09	28.17	28.26	28.35	28.44	28.52	28.61	28.70	28.79
33	28.87	28.96	29.05	29.14	29.22	29.31	29.40	29.49	29.57	29.66
34	29.75	29.84	29.92	30.01	30.10	30.19	30.27	30.36	30.45	30.54
35	30.62	30.71	30.80	30.89	30.97	31.06	31.15	31.24	31.32	31.41
36	31.50	31.59	31.67	31.76	31.85	31.94	32.02	32.11	32.20	32.29
37	32.37	32.46	32.55	32.64	32.72	32.81	32.90	32.99	33.07	33.16
38	33.25	33.34	33.42	33.51	33.60	33.69	33.77	33.86	33.95	34.04
39	34.12	34.21	34.30	34.39	34.47	34.56	34.65	34.74	34.82	34.91
40	35.00	35.09	35.17	35.26	35.35	35.44	35.52	35.61	35.70	35.79
41	35.87	35.96	36.05	36.14	36.22	36.31	36.40	36.49	36.57	36.66
42	36.75	36.84	36.92	37.01	37.10	37.19	37.27	37.36	37.45	37.54
43	37.62	37.71	37.80	37.89	37.97	38.06	38.15	38.24	38.32	38.41
44	38.50	38.59	38.67	38.76	38.85	38.94	39.02	39.11	39.20	39.29
45	39.37	39.46	39.55	39.64	39.72	39.81	39.90	39.99	40.07	40.16
46	40.25	40.34	40.42	40.51	40.60	40.69	40.77	40.86	40.95	41.04
47	41.12	41.21	41.30	41.39	41.47	41.56	41.65	41.74	41.82	41.91
48	42.00	42.09	42.17	42.26	42.35	42.44	42.52	42.61	42.70	42.79
49	42.87	42.96	43.05	43.14	43.22	43.31	43.40	43.49	43.57	43.66
50	43.75	43.84	43.92	44.01	44.10	44.19	44.27	44.36	44.45	44.54
51	44.62	44.71	44.80	44.89	44.97	45.06	45.15	45.24	45.32	45.41
52	45.50	45.58	45.67	45.76	45.84	45.93	46.02	46.11	46.19	46.28
53	46.37	46.46	46.55	46.64	46.72	46.81	46.90	46.99	47.07	47.16
54	47.25	47.33	47.42	47.51	47.59	47.68	47.77	47.86	47.94	48.03
55	48.12	48.21	48.30	48.39	48.47	48.56	48.65	48.74	48.82	48.91
56	49.00	49.08	49.17	49.26	49.34	49.43	49.52	49.61	49.69	49.78
57	49.87	49.96	50.05	50.14	50.22	50.31	50.40	50.49	50.57	50.66

TABLE FOR KAINITS.

In this table both K_2O and its equivalent K_2SO_4 are found under each milligramme of precipitate.

Example:—Five grammes of a sample of kainit were dissolved in water, filtered, and the filtrate made up to 250 c.c. 25 c.c., equal to 0.5 gramme sample, were taken, 10 c.c. of a solution of platinum chloride containing 10% platinum being added. The whole was evaporated on a water bath to a syrup, which set into crystals on cooling. 10 c.c. of 95% alcohol were added, and gently agitated with the mass.

The alcohol having been poured off through a small, well-dried tared filter, another 10 c.c. of alcohol were similarly added and poured off. The crystals are then transferred to the filter, and washed with alcohol once or twice, dried at 110–115°C. for half an hour, cooled under a desiccator, and weighed. The precipitate weighed 0.368 grms. On referring to the table, we find 0.36 grms. in the left hand column, and under .008 opposite we find 14.19% K_2O , equal to 26.22% K_2SO_4 .

The following are the additional percentages for tenths of a milligramme:—

	.0001	.0002	.0003	.0004	.0005	.0006	.0007	.0008	.0009
% K_2O	.0038	.0077	.0115	.0154	.0193	.0231	.0270	.0308	.0347
% K_2SO_4	.0071	.0142	.0214	.0285	.0356	.0427	.0499	.0570	.0641
% KCl	.0061	.0122	.0183	.0244	.0305	.0366	.0427	.0488	.0549

TABLE FOR KAINITS SHOWING PERCENTAGE OF K_2O AND K_2SO_4 FROM GRAMS K_2PtCl_6
(OBTAINED FROM 0.5 GRM. SAMPLE.)

	000	001	002	003	004	005	006	007	008	009
	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4
9	11.18 20.66	11.22 20.73	11.26 20.81	11.30 20.88	11.33 20.95	11.37 21.02	11.41 21.09	11.45 21.16	11.49 21.23	11.53 21.30
0	11.57 21.38	11.61 21.45	11.64 21.52	11.68 21.59	11.72 21.66	11.76 21.73	11.80 21.80	11.84 21.87	11.87 21.95	11.91 22.02
1	11.95 22.09	11.99 22.16	12.03 22.23	12.07 22.30	12.11 22.37	12.14 22.44	12.18 22.52	12.22 22.59	12.26 22.66	12.30 22.73
2	12.34 22.80	12.37 22.86	12.41 22.87	12.45 22.94	12.49 23.02	12.53 23.09	12.57 23.16	12.61 23.23	12.64 23.30	12.68 23.37
3	12.72 23.51	12.76 23.58	12.80 23.66	12.84 23.73	12.88 23.80	12.91 23.87	12.95 23.94	12.99 24.01	13.03 24.08	13.07 24.16
4	13.11 24.23	13.15 24.30	13.18 24.37	13.22 24.44	13.26 24.51	13.30 24.58	13.34 24.65	13.38 24.73	13.42 24.79	13.46 24.87
5	13.49 24.94	13.53 25.01	13.57 25.08	13.61 25.15	13.65 25.22	13.69 25.29	13.73 25.37	13.76 25.44	13.80 25.51	13.84 25.58
6	13.88 25.65	13.92 25.72	13.96 25.79	13.99 25.87	14.03 25.94	14.07 26.01	14.11 26.08	14.15 26.15	14.19 26.22	14.22 26.29

(To be continued.)

THE RIBBLE JOINT COMMITTEE.

Monthly meeting of the Ribble Joint Committee was held last week in the County Hall, Preston. Mr. T. Fair, of Lytham,

Mr. A. G. Leigh, late a non-commissioned officer in the artillery, was appointed sub-inspector in the place of Mr. Milner, resigned, at a salary of £125. per annum. There were applicants for the position. The Rev. R. C. Fletcher, that a deputation from the Committee might visit Croston view to reporting as to the present position of the district in regard to its sewage arrangements. The Rev. R. C. Colonel Starkie, and Mr. H. Parke were appointed a deputation to accompany them.

Mr. Fair complained of the terms of the report upon the work done at Burnley, which he regarded as too severe. Burnley, he said, the last few years had spent £100,000. on sewage disposal, and, having now finished the money available, they would like to consider their position. Very favourable reports had been given in the past, and he thought Mr. Naylor could not say the Burnley was not as willing as any in the district. Mr. Naylor said that his duty was to perform; the Committee had to deal with his report. The cases of other authorities and various manufacturers were considered for different periods. Two months' notice of intention to take proceedings against the county borough of Wigan for what was characterised as "a very gross case of solid pollution" at Standish was given. Five men had, the inspector reported, been discharging solid sludge from the sides of a grid, whence it had been carried into the main stream. The Deputy Clerk reported that a petition had been received from the Local Government Board for a by-law to be taken against Mr. William Sumner, brewer, of Burnley, for polluting Eaves Brook. It was stated that Mr. Sumner had his licensed property, and that the brewery alleged to be the cause of the pollution was to be removed, and, taking into consideration the facts, the Committee adjourned the matter for three months. Mr. Fair was instructed to prepare a plan for dealing with the pollution of the Fulwood township.

CHEMICAL TRADE OF NEW YORK IN 1896.

Following review of the course of the chemical trade at New York during the past year will doubtless be of marked interest to many of our readers, giving as it does an American opinion on the chemical trade:—

HEAVY CHEMICALS.

The heavy chemical market during 1896 was a rather uneventful one, due mainly to the harmony which exists among the various manufacturers, and to the dullness in trade that affected every line of business during the greater part of the time. This dullness influenced the prices rather than the amounts consumed, which in most cases exceeded the imports in 1895. In two notable instances, however, imports decreased very much, owing to the supply manufactured at home supplanting the foreign article, which formerly found no opposition from domestic manufactures.

Sal soda was one of these exceptions, the falling off during the months of 1896 from the corresponding period in 1895 being 100,000 tons. In January, the market opened with quotations at 37½ c., fell slightly by the middle of the month, but regained the figure by the middle of March. Toward the latter part of the year, quotation for smaller shipments reached 2.45 c. At the end of May the lowest values for the year were obtained, 2½ c. to 2¾ c., but three weeks later prices had recovered to 2½ c. to 2¾ c.,

which has been held ever since. These figures are for 72, 74, and 76% strengths.

Alkali had rather a quiet time. Quotations at the beginning of January were 80 c. to 90 c., which were maintained for just one month, when they increased to 85 c. to 95 c. These prices in turn held until April, when 80 c. to 95 c. was obtained. Before the end of the month 90 c. to 1.15 dol. was asked, which early in May was shaded first to 87½ c. to 1.15 dol., and then dropped to 77½ c. to 87½ c. By the end of the month the figures had changed to 80 c. to 95 c., the same that they had been just two months previously. Toward the end of July the market stiffened somewhat and 80 c. to 1 dol. had to be paid. No further change was noted until the middle of September, and then the increase was very slight, 82½ c. to 1 dol. being asked. The last change of the year occurred during the second week in November when the price fell to 70 c. to 90 c.

Sal soda again shows a large decrease in the amount of imports, the difference between the first 10 months of 1896 and the same period in 1895 being more than 7,000,000 lbs. The difference is, of course, made up by the production at home. Quotations at the beginning of the year were 65 c. to 70 c., which in April had fallen to 60 c. to 65 c. From this time on they varied slightly, and before the middle of June advanced to 67½ c. to 70 c., which was followed immediately by a further increase to 70 c. to 71½ c. There was no further change until near the middle of November, when prices fell to 62½ c. to 67½ c.

The heavy increase in importations of bleaching powder in 1895 over 1894 (about 20%) was not continued in 1896; but, on the contrary, the first 10 months of the year showed a decrease of more than 6,000,000 lbs. from the same period in 1895. This deficiency occurred toward the close of the year, when bleaching powder was scarce for quite some time. October alone showed a decrease of nearly 2,500,000 lbs. from the imports during the same month in 1895. January opened with quotations at 1.85 dol. to 2 dol.; they fell to 1.65 dol. to 1.90 dol. by the middle of the month, and recovered to 1.85 dol. to 1.90 dol. by February 1st. Before the middle of March a decline occurred to 1.70 dol. to 1.80 dol., and in another month there was a fall to 1.62½ dol. to 1.75 dol. Towards the end of April prices increased slightly, but May opened with the lowest figures reached during 1896, namely, 1.50 dol. to 1.55. However, they recovered almost immediately to 1.62½ dol. to 1.75 dol., yet declined to 1.50 dol. to 1.75 dol. by the end of May. Early in June 1.87½ dol. to 1.95 dol. was asked; two weeks later this became 1.75 dol. to 1.85 dol., which, with only slight changes, held to the end of the year.

The imports of heavy chemicals into the United States for the 10 months ending October 31st, according to the Bureau of Statistics, were as follows: Soda ash, 144,889,818 lbs. in 1896, against 229,349,774 lbs. in 1895; bleaching powder, 80,123,023 lbs. in 1896, against 86,511,857 lbs. in 1895; caustic soda, 38,655,328 lbs. in 1896, against 54,705,758 lbs. in 1895; sal soda, 12,442,989 lbs. in 1896, against 19,792,659 lbs. in 1895; chlorate of potash, 4,125,243 lbs. in 1896, against 4,016,233 lbs. in 1895; muriate of potash, 59,636,391 lbs. in 1896, against 52,551,196 lbs. in 1895.

Sulphur.—So long as the Sicilian sulphur trust exists—and there appears to be no reason why it should not outlive its five years' compact—the market must continue to maintain its strength, for there are no prospects at this time of a dangerous competitor coming into the field to oppose it. Louisiana deposits have yielded comparatively little; Texas lands have yet to be developed; while the extensive pyrites deposits often mentioned as existing in the South Atlantic seaboard States are beyond reach of railroads now in existence. The field is comparatively clear for the present, and the prospects are that 1897 will be a repetition of the second half of 1896.

During 1896, the shipments of brimstone from Sicily to the United States from January 1st to November 30th were 110,000 tons, which

figures practically represent the imports from that country for the year. During the same period in 1895 the shipments from Sicily were 90,000 tons. Imports of crude brimstone into the United States for the 10 months ending October 31st were reported by the Treasury Department at 115,435 tons, showing an increase of 7,810 tons over the corresponding period in 1895.

FERTILIZER MANUFACTURE AND CONSUMPTION.

With the exception of 1894 the year under review has been the most active since 1886. The manufacture of fertilizers in the different sections of the United States amounted, it is estimated, to 1,500,000 tons in 1896, which compares with 1,325,000 tons in 1895, and 1,600,000 tons in 1894. Consumption during 1896 has been on an increase, reaching 1,355,000 tons against 1,128,000 tons in the previous year and 1,575,000 tons in 1894. Commercial manures are used in the Southern States principally for the growing of cotton, while in the other States of the Union these fertilizers are used in general farming. In the Western States, where 125,000 tons of commercial manures have been used this year, there is noted increased activity in the wheat sections, due, in a great degree, to the favourable condition of the market for that cereal.

The Northern and North Eastern States have not been as active in their consumption of fertilizers, and it would seem that the farming industry in these sections is practically at a standstill. In the latter case the consumption reached 100,000 tons, the same as last year, and a decrease of 20,000 tons from 1894. In the Northern States the consumption was 220,000 tons in 1896 a decrease of 35,000 tons from 1895 and 145,000 tons from the year previous.

Shipments of phosphates from the ports of Charlestown and Port Royal in South Carolina, and Savannah in Georgia, for the fiscal year ending December 31st, 1896, amounted to 382,15 tons, an increase of 127,189 tons over 1895, and a decrease of 77,896 tons as compared with 1894.

ALUMINA v. FERRIC SALTS FOR SEWAGE.

IN reply to a letter from Mr. John Lindsay, interim clerk, of Glasgow, to Professor Frankland on the continued use of sulphate of alumina as against the proposed use of perchloride of iron as a precipitant for the Glasgow sewage at the Dalmarnock works, the professor has written as follows:—

"I am in receipt of a letter from Mr. John Lindsay, interim clerk of police, enclosing documents, and requesting me, on your behalf, to consider the reports of two of your officials on the treatment of sewage at these works, whose opinions thereon are diametrically opposed to each other. I am also desired to give my opinion upon the question which has thus come before your Sewage Committee.

"I have carefully considered the statement of the official experts, and, having also made myself acquainted with the accompanying documents, have to express the following opinion:—

"Sulphate of alumina and perchloride of iron, or basic perchloride of iron, are about equally effective for the chemical treatment of sewage, and this, so far as is known, in proportion to the chemical equivalents of the available alumina and ferric oxide in these compounds respectively; that is to say, 102 parts by weight of available alumina are equal in purifying power to 160 parts by weight of available ferric oxide; or alumina: ferric oxide as 1:1.57.

"It is impossible for me to check the estimates of cost given by your two experts without a knowledge of the proportions of available alumina and ferric oxide contained in the articles known in the Glasgow chemical markets as 'sulphate of alumina' and 'perchloride or basic perchloride of iron.'

"I know, from my own experience in another town with sewage and river water similar to those of Glasgow, that the escape of even a small amount of a soluble salt of iron from sewage works is most disastrous to the appearance of the river, when the latter, as is the case with the Clyde, contains drainage from alkali waste.

"Under the conditions which prevail at Glasgow, therefore, I would decidedly recommend that the treatment with sulphate of alumina should be continued, unless, indeed, it can be clearly shown (by comparison of the available alumina and ferric oxide in the two chemicals) that anything like an annual saving of £12,000, as alleged by one of your officials, would be effected by the use of perchloride of iron; because in this case, it would be possible, while securing a very large profit, to have a chemist engaged day and night in testing the effluent so as to avoid the escape of iron salt into the Clyde. It would, however, probably be found necessary to provide storage for 24 hours' sewage, so as to obtain a reasonably uniform raw material for treatment. I very much doubt, however, whether in practice any such considerable saving would be effected by the substitution of a salt of iron for sulphate of alumina, as explained by your official expert who recommends the continuance of treatment by the last named chemical.—I am, my Lord and gentlemen, your obedient servant—(Signed) E. FRANKLAND."

Trade Notes.

ETHER DRINKING.—Another epidemic of ether drinking has in the Cookstown district of County Tyrone. Recently, at Monaghan Sessions, a woman named Brennan was fined £5 and costs for her shop open for the sale of ether.

FATAL FALL OF A CHIMNEY.—Last week an accident occurred at the Widnes Works of the United Alkali Company. A chimney fell on the caustic shed, demolishing about forty yards and a labourer named Edward Kinsella, was killed, also John Wood, caustic man, and William Taylor, bricksetter, were injured, the latter dangerously. The cause of the disaster is unknown. Fortunately only a portion of the wrecked shed was in use.

PETROLEUM SHIP BLOWN UP.—Particulars are announced of the total loss of the Italian petroleum ship *Elena G.* The vessel was on a voyage from Philadelphia with a cargo of 4,548 barrels of petroleum, near Bordeaux. The ship took fire whilst anchored off Lorient in the Department of Gironde and blew up with a terrific report. The crew had a very narrow escape. Four men were severely burnt, otherwise injured. The injured men included the first mate (a two sailors, and a Customs officer who was on board. The considerable danger to shipping in the vicinity owing to the floating about. The vessel burned out and sank.

PREVENTION BETTER THAN CURE.—Recently a convent at Quebec, Canada, was burnt down and seven of the sisters burned to death. The fire was first attributed to an oil lamp explosion. Seeing that the minimum flash-point for burning oil under the Canadian law (Abel test), this announcement was startling, and it is most in the public interest that the fullest publicity should be given to the later report of the investigation which emphatically exonerated the oil by stating that the fire originated with some draperies, too near to which a lighted candle had been placed. As low flash advocates have only two cases against flash oil to harp on, they may be tempted to make this accident their attention is directed to the above true origin, with a request that the truth will be regarded for once—just this once please.

MESSRS. BLUNDELL, SPENCE AND CO., LTD.—The report of the company, to be presented to the shareholders at the eighth meeting states that the directors recommend a dividend of nine pence on the ordinary shares, less income tax. The amount to be forwarded will be £8,853. 1s. 8d., as against £6,462 18s. 3d. in 1900. On 31st October the amount standing to the credit of the Anchor Re-building account, including interest amounted to £7,018. 4s. 6d. further sum of £1,000. has since been transferred to this account, making the total £8,018. 4s. 6d.; of this amount £7,000. is invested in Consols. The re-building of the offices, etc., at Anchor consequent on a portion of the same having been demolished for the purpose of widening Upper Thames-street, is being proceeded with on a valuable freehold wharf adjoining the company's premises at Anchor, Hull, has been bought and paid for since the closing of the year for the past year. The Gratuity Fund will amount to £1,342. the largest amount it has yet attained. The capital of the Fund, initiated by Mr. Longstaff, is now valued approximately at £1,300, and is nearly all invested in ordinary shares of the company.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways of remitting foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the Money Order, a letter advising us of same should always accompany it, otherwise, owing to post-office formalities, much delay in acknowledging foreign remittances is inevitably entailed in this method.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The position of benzol is firmer. Makers being busy filling the article is scarce and prices steady, at 3s. 6d. for 90's, prompt for 50/90's. Carbolic acids are strong, though there appear to be a great amount of business doing. Prices are steady for 60% crude, and 7½d. for 40% crystals. Disinfectant (creosylic) steady, at 10d. per gallon. Grease oils (24° Tw.) advanced 5s. per ton. Creosote is firm in price and demand. Anthracene rather easier, at 8½d. for 30% A, and 7½d. for 40% A, is feeble, prices ranging from 24s. to 26s. 6d., Co. b. East Coast.

Sulphate of ammonia having begun the week well, has closed rather lower. The inquiry for forward has been better, but buyers want things all their own way, with the result that only a limited business has been done. Beckton is now offering for May-August at £8. Dealers have been buying fairly freely in both positions. Closing values are:—London outside makes £8., Liverpool £7. 18s 9d., Hull £7. 17s. 6d., and Leith £7. 17s. 6d. all prompt. Nitrate steady, and rather dearer.

MISCELLANEOUS CHEMICAL MARKET.

There are no changes of importance to record in the past week in the position of any of the leading products of the alkali trade. Bleaching powder still continues an active market for export, and with a slightly improved demand, generally, for home trade. Prices: Hardwoods, £6. 15s., f.o.b.; softwoods, £6. 12s., f.o.b., per ton. Chlorates are quiet, and without fluctuation, at 4¼d. for potash and 5¼d. per lb. for soda. Caustic soda without change in position or value; current quotations are as follows:—F.o.b. Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. per ton, nett, 10-ton lots and upwards. Ammonia alkali unchanged in price at £3. 7s. 6d., bags, f.o.b., for home trade, and no improvement for export. Ordinary Leblanc ash only in small request, and prices nominal. Bicarbonate and soda crystals unaltered. For sulphate of copper the demand is very quiet, and prices have advanced to £19, f.o.b., with still a strong inquiry. Recovered sulphur is firm at £4. 12s. 6d., f.o.b. Saltcake quiet at 19s. to 20s. for spot, and forward value of nitrate of soda has slightly improved. Quotations are 7s. 10½d. to 8s. 3d. according to position. There is a fair inquiry for potash, caustic and carbonate, and full prices are maintained. Prussiate of potash rather firmer at 5d. to 5¼d. per lb. Bichromates unchanged. Brown acetate of lime is held firm at the advance. Other acetates and acetic acid are meantime without change. For white powdered arsenic there is again more inquiry, and business done at £23. 15s. to £24. per ton. Oxalic acid steady at conference prices. Alum and sulphate of alumina are still offered at prices below previous records. Generally the trade in miscellaneous chemicals is reported quiet in the manufacturing districts.

REPORT ON MANURE MATERIAL.

There continues to be a fair amount of business doing, but as yet there is no great activity in the market. For the Baltic there are still buyers of high grade Florida rock at 6¾d., but Continental and U.K. buyers are very quiet and indisposed to purchase. The quotation for 58/63% Algerian and South Carolina River rock remains unchanged. There is less inquiry for bone material, manure manufacturers being in the main fairly well supplied. The value of River Plate cargoes of bones is probably about £3. 17s. 6d. per ton, and this price would be taken for Bombay bone meal, either on spot or to arrive. There has been considerable activity in nitrate of soda, and Hamburg and on the continent generally 8s. to 8s. 3d. for arrived and near at hand cargoes has been paid. At the close, however, the market is again quieter, and highest prices paid would hardly now be obtainable. On spot the price has been advanced to 8s. 1½d. per cwt. for good up to 8s. 3d. for fine quality.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 48s. 2½d., Middlesbrough 41s. 3d. cash, and hematite 51s. 2d. Copper, firm: Chili bars, G. O. B.'s and G. M. B.'s, closed at £50. 15s. to £51. cash, and £50. 5s. to £51. 10s. three months. Tin, steady: Straits closed at £60. 10s. to £61. cash, and £61. 5s. to £61. 15s. three months; Australian, £62. 5s.; English ingots, £64. 10s. to £65. Lead firm: Spanish, £11. 5s.; English, £11. 17s. 6d. to £12. Silesian spelter, ordinary, £17. 16s. 3d. to £17. 17s. 6d. Nickel, 1s. 2½d. Antimony, £31. Quicksilver: First hands, £6. 12s. 6d.; second hands, £6. 12s. 6d. Copper shares, steady: Cape, 2½ to 2¾; Copiapo, 2½ to 2¾; Libiola, 1½ to 2½; Mason and Barry, 2½ to 2¾; Rio Tinto, 27 to 27½; Tharsus, 6¾ to 6¾.

GLASGOW, WEDNESDAY.—Market easy, but a fair business. Scotch done at 48s. 3½d., 48s. 4d., and 48s. 3d. cash; also at 48s. 6d., 48s. 7d., and 48s. 6d. one month; buyers, 48s. 2½d. cash; sellers, 48s. 3d. Cleveland done at 41s. 4½d. to 41s. 4d. cash, and 41s. 7d. to 41s. 6½d. one month; buyers, 41s. 3d. cash; sellers, 41s. 3½d. Cumberland hematite done at 51s. 4d. to 51s. 3d. cash, and 51s. 6d. one month; buyers, 51s. 2d. cash. Middlesbrough hematite done at 50s. 7d. to 50s. 7½d. cash, and 50s. 11d. one month; buyers, 50s. 7½d. cash.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—There is very little doing in Palm oil. The demand is decidedly weak and the supply short. There are no sales to report. Olive continues to move fairly well, Spanish in particular having been done at full prices, with a rising tendency. There is little that is fresh to record concerning linseed. Liverpool makes continue to offer at 16s. 3d. to 17s. 6d., in export casks, according to quality. Cottonseed continues dull, with very little doing at 15s. 9d. to 16s. 3d. for Liverpool refined. The weakness in castor oil did not last for long, and the market is again firm, with good seconds Calcutta at 2¾d. spot, and first pressure French 2¾d. per lb. Tallow is dull, and there is no quotable change in price. Resin keeps steady in price, for the most part ruling dear, but there is a moderately good business doing in all grades. Spirits of turpentine are firmer, with an advance, there being a fair inquiry at 21s. to 21s. 3d. per cwt. Petroleum is decidedly quiet, American still standing at 6¾d. to 7¾d., and Russian refined 5¾d. per gallon.

COLOURS.—Prices are steady, and practically without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £15, Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 90s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 65s. Umber: 40s. to 45s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Last week's seeming recovery in sulphate of ammonia had no staying power with it and the article is away with it again, just as has so often been the case before. Best price got within these latest days was £8. 5s. f.o.b. Glasgow for prompt (equivalent to £8. 2s. 6d. Leith), but holders do not look for so much now. The actual value, some hold, is once more below £8., but there are makers who stand for higher. Nothing at all moving in forward business, the views of the two sections being too divergent. The general market is getting into its normal condition, and the call for stuff has been fairish. With the exception of sulphate of copper and nitrate of soda, which have gone up, chemicals are stationary in price, or inclined downwards. Saltcake is lower. Caustic is easier, and salammioniac also, although not as yet altered as to figures. Mineral oils hold nominally to contract prices for burning supplies, but American petroleum quotations point to a break in the near future, unless these take a turn. Lubricating oils continue firm.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/52°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 12s. 6d. nett, Tyne; saltcake, 20s.; borax, English, refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4¼d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 4½d.; sulphate of ammonia, £7. 18s. 9d. to £8. 2s. 6d. prompt, f.o.b. Leith; salammioniac, first and second white, £35. and £33. nett, any port; sulphate of copper, £18. to £18. 10s., less 5%, Liverpool; paraffin scale, hard, 1½d. to 1¾d., and soft, 1½d. to 1¾d. per lb.; paraffin wax, 120° semi-refined, 1½d. to 2½d. per lb.; paraffin spirit (naphtha), 7½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ¼d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 29,714 bags beet unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

In the chemical trade there is very little alteration, and prices remain practically the same. Soda crystals are quoted at £2. 2s. 6d. per ton, gross weight, locally. Bleaching powder, £6. 5s. to £6. 15s. per ton, according to destination. Sulphur scarce, at £5. per ton.

Bleaching powder, softs, £6. 15s. per ton, nett; hards, £7. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett, do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett, hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 2 cwt.

kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt steady, at 9s. 6d. per ton, f.o.b. Tees.

COALS.—Trade is firm, and demand continues steady. Coke is also in good demand, and higher prices are being asked for forward delivery. Best Northumbrian steam, 7s. 9d. to 8s. per ton; second qualities, 6s. 9d. to 7s. per ton; small steam, 3s. 3d. to 3s. 6d. per ton. Gas coals, 7s. to 8s. per ton. Bunker coals, 6s. 9d. to 7s. per ton. Household coals, 10s. to 11s. per ton. Coke, 15s. 6d. to 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The market, Micawber like, is waiting for something turning up. Prices remain dull and demand quiet. The principal imports to date, compared during the same time a year ago, have been:—Linseed, 15,720 quarters, against 38,455 quarters; rapeseed, 6,005 quarters, against 1,204 quarters. Cottonseed, 9,016 tons, against 5,522 tons; oilcake, 170 tons, against 1,105 tons; olive oil, 124 tons, against 34 tons. Linseed oil is rather steadier at 14s. 4½d. asked, month buyers thereat; forward, February-April, 15s.; May-August, 15s. 9d. Boiled and refined, £1. to £1. 10s. per ton extra. Cotton oil, spot naked, 13s. 3d.; forward, January-April, 13s. 6d.; May-August, 14s. 3d. buyers; crude oil, 12s. spot; January-April, 12s. 3d.; casks £1.1, and ordinary barrels £1. 10s. per ton extra. Turpentine very firm at 21s. 6d. Castor oil, first pressure, 2½d. per lb. Olive oil quoted firmer but demand very limited. C. A. oils from, £16. to £18. per ton. Green olive oil soaps, 60%, £16. per ton c.i.f. Hull. Pale distilled oleines, £17. 15s.; saponified, £18. 15s.; white distilled, £20. per ton. Yorkshire grease, £8 to £9. per ton. Pail lard, 23s. 9d. Danish butter, 120s. to 124s.

CAKES, owing to the present inclement weather, are in better demand, but prices rule low. Linseed cakes firm, 95% pure, £6. 12s. 6d. per ton. Oilcakes, £5. 12s. 6d. per ton. Cotton cakes also rule firmer: Best makes, £4. 2. 6d.; seconds, £4. per ton. Rape cakes unchanged.

PAINTS in fair demand, and, like all other goods, quality must be paid for. Prices are:—White lead, £16. 10s.; red lead, £14. 10s. Dry mineral colours £3. to £8. per ton. Oxide of iron, Venetian red, yellow, ochre, black, blue, and green paints from £10. per ton.

Ready-mixed paints, in 1, 2, 4, and 7 lb. tins, from £24. per ton. Paint remover 25s. to 30s. per cwt. Imperial black varnish £5. 10s. per ton in barrels free. Oak varnish from 5s. 6d. per gallon.

New Companies.

The Almeric Quicksilver and Copper Company, Ltd.—CAPITAL £160,000., in shares of £1. each. This company has been formed to prospect for and acquire mines in Spain. The subscribers to the memorandum of association are:—P. Forrest, Shotts, Lanarkshire, bank agent; W. Gillies, 17, Royal Exchange, Glasgow, iron merchant; W. Borland, Glasgow, writer; R. Reid, Glasgow, chartered accountant; D. Cairney, 45, W. Nile-street, Glasgow, stockbroker.

United Kingdom White Lead Company, Ltd.—CAPITAL £60,000., in shares of £1. each. This company has been formed to manufacture and deal in white lead, lead tin and antimony alloys, oils, pigments, varnishes, petroleum, turpentine, &c. The subscribers to the memorandum of association are:—J. J. Maloy, 9, Great Turnstile, W.C., gentleman; M. M. Hanly, jun., 165, St. John-street, E.C., printer; T. Baker, 11, Poultry, E.C., agent; F. Pontifex, 49, Finsbury-pavement, E.C., engineer; H. Tharsen, 95, Brixton-road, S.W., journalist; T. Whitehead, 73, Algernon-road, Lewisham, gentleman; R. T. Hollis, 50, Long-lane, E.C., chartered accountant.

Gerard Bros., Ltd.—CAPITAL £40,000., in £1. shares, of which 20,000 are 5% cumulative preference. This company has been formed to acquire and carry on the business of soap and glycerine manufacturers, and tallow refiners, as now carried on at Basford, Notts. The subscribers to the memorandum of agreement are:—T. B. Gerard, New Basford, Nottingham, soap manufacturer; W. F. Gerard, Old Basford, Nottingham, retired; T. A. Gerard, New Basford, Nottingham, soap manufacturer; J. B. Gerard, New Basford, Nottingham, soap manufacturer; J. Sadler, 90, Noel-street, Nottingham, traveller; S. P. Derbyshire, Wheeler-gate, Nottingham, chartered accountant; H. Wing, Nottingham, solicitor.

Providencia Nitrate Co., Ltd.—CAPITAL £175,020., in 35,000 £5. shares, and two debenture trustees shares of £10. each. This company has been formed to acquire and work the Providencia, Huascar and other nitrate fields at Tarapaca, Chile, or elsewhere, and to manufacture and deal in sodium nitrate and iodine. The subscribers to the memorandum of association are:—A. Quat-faslem, 131, Trebovir-road, S.W., merchant; T. O. Richards, 1, Rita-road, Vauxhall-park, S.W., clerk; G. E. Eggleton, 10, Cheriton-square, Upper Tooting, gentleman; F. S. Davis, 4, Strone-road, Forest-gate, clerk; W. A. Hunter, 3, Wilson-road, Camberwell, S.E., clerk; G. W. H. Daniels, 74, Rutland-road, East Ham, secretary; J. W. Ward, 14, Marney-road, Clapham Common, S.W., clerk.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 9th.

Acetate of Lime—
U. States, 1,168 bgs. R. E. Drummond

Acetic Acid—
Holland, 43 pks. H. Wallace & Co.
France, 20 J. Harrison
Holland, 50 Phillips & Graves

Acetone—
Holland, 2 cks. G. Rahn & Co.
Austria, 15 drs. Thames S.
T. & L. Co.

Alkali—
Belgium, 20 c. J. Harrison

Alum—
Holland, 76 cks. H. Wallace & Co.

Ammonium Chloride—
Holland, 54 cks. H. Lorenz

Antimony Ore—
Japan, 50 t. L. & I. D. Jt. Co.
Portugal, 60 J. Bamber
" 12 Union L. Co., Ltd.

Arsenic—
Germany, 3 cks. Brit. Anti-Fouling
C. Co.

Asbestos—
Canada, £300 Deering & Robertson
Germany, 53 Craven & Co.

Italy, 75 Cape Asbestos Co.
Natal, 150 Société John Cockerill
" 150 L. & I. D. Jt. Co.

Barytes—
Holland, 68 pks. J. L. Lyon & Co.
" 44 cks. E. J. Diggins
" 23 J. Graves
Belgium, 61 J. L. Lyon & Co.
Holland, 52 W. Harrison & Co.

Borate of Lime—
San Francisco, 1,218 bgs. Pacific
Borax Chem. Wks., Ltd.

Camphor—
Germany, 315 tubs R. Warner & Co.
Hong Kong, 100 cs. S. Figgis & Co.
Japan, 371 pks. R. Warner
& Co.
" 69 Lewis & Co.
Germany, 105 S. Figgis & Co.
Japan, 65 tubs "

Caoutchouc—
Belgium, 2 c. S. Figgis & Co.
Penang, 71 E. Bonstead & Co.
" 5 L. & I. D. Jt. Co.
B. Honduras, 3
U. States, 2
Singapore, 260
France, 87
Singapore, 120
Belgium, 1 Société John Cockerill
Germany, 42 Bullard, King
& Co.
Norway, 20 W. E. Bott & Co.

Natal, 4 L. & I. D. Jt. Co.
U. S. Col., 40 Prop. Bull. Wf.
Germany, 5 Anderson,
Weber & Co.

Castor Oil—
France, 27 brls. R. G. Hall & Co.
" 40 Anderson, Weber &
" 41 cks. C. Windschuegl
& Co.
" 50 Snowdon, Sons
& Co.

Caustic Potash—
France, 17 drs. Petri Brs.

Chemicals (otherwise undescribed)
France, 24 Prop. Hay's Wf.
Germany, 126 Phillips & Graves
Belgium, 109 Société John
Cockerill
France, 6 Mory & Co.
Holland, 8 R. W. Greeff & Co.
" 15 Phillips & Graves
Germany, 13 T. H. Lee
" 15 R. W. Greeff
& Co.
U. States, 535 F. Parker
Holland, 7 Little & Johnston
" 6 H. Lorenz
Germany, 120 R. Greening
" 268 A. & M.
Zimmermann

Chlorine—
Germany, 6 cs. A. & M. Zimmermann

Copperas—
Holland, 20 cks. A. & M.
Zimmermann
Charles & Fox

Cream of Tartar—
Germany, 60
Spain, 25 cks. B. & F. Wf. Co.
" 15 F. C. Devon & Co.
" 20 W. C. Bacon & Co.
Portugal, 10 B. & F. Wf. Co.
France, 6 "

Dextrine—
Germany, 30 bgs. C. A. Comyn
" 50 M. D. Co.
" 200 H. Javens
" 450 R. G. Hall & Co.

Dyestuffs—
Annatto
B. W. L., 1 pk. Hoare, Wilson
& Co.
Argols
Spain, 576 bgs. B. Jacob & Sons
Italy, 453
Greece, 3 brls. H. B.
Attwater
" 10 F. W. Bowyer
& Co.
Cape, 30 Chalmers, Guthrie & Co.
Cochineal
Canaries, 3 bgs. J. W. Borland
" 15 W. M. Smith & Sons
Cutah
Hong Kong, 510 bgs. J. Swire & Sons
Singapore, 100 H. Johnson & Sons
" 600 cs. J. Swire & Sons

Tracts	25 cks.	Leach & Co.
Am.	2	J. Harrison
Ark.	1	Sorensen & Co.
ny.	300 bgs.	Hoare, Wilson & Co.
	40 cs.	Bailey & Leatham, Ltd.
bler	10, 1,200 bgs.	Beresford & Co.
	240 bls.	G. R. Haller & Co.
	232	R. & J. Henderson
do	2 chts.	Société John Cockerill
ies.	6	Forbes, Forbes & Co.
	4	J. Owen
	5	H. J. Perlbach & Co.
	27	Parsons & Keith
	78	Patry & Pasteur
	35	Credit Lyonnais
	19	L. & I. D. It. Co.
	12	Wallace Bros.
	10	Thomasset & Co.
	14	Ralli Bros.
	34	Ross & Deering
	19	Dipnall & Co.
	16	J. Hatton Hall & Co.
	8	C. S. Lovell
	324	Arbuthnot, Latham & Co.
	10	H. W. Jewesbury & Co.
abolams	2, 130 bgs.	W. Shelcott
	670	E. J. Winsor & Co.
ron	1 cs.	Richardson, Spence & Co.
ners' Bark	25 t.	Culverwell, Brooks & Co.
	225	A. & W. Nesbitt
onia	20 L.	Page & Drapeau
	114	A. & W. Nesbitt
nd.	100 bgs.	R. Bennett & Co.
et.	30 pks.	S. E. Railway Co.
	750	Fellows, Morton & Co.
	500	G. Clark & Sons
	50	A. E. Pigott
	500	E. Thompson & Co.
	400	L. & I. D. It. Co.
	200	Baxter & Hoare
	30	Seaward Bros.
	300	C. Southwell
	200	T. J. Lipton
	50	Union L. Co.
	70	J. Barber & Co.
	210	R. G. Hall & Co.
	100	Oblenschlager Bros.
	450	L. P. D. Co.
	350	J. Barber & Co.
	140	L. & I. D. It. Co.
	60	Elkan & Co.
	44	J. Harrison
	171	Burnett Bros. & Sons
	30	W. Harrison & Co.
	12	Phillips & Graves
	31	H. Johnson & Sons
	211	T. H. Lee
	150	J. Barber & Co.
ial Earth—	10 L.	A. Haacke
Black—	60 bdls.	J. Melvin
ese Ore—	120 L.	Sawer, Sons, & Co.
	250 t.	H. J. Perlbach & Co.
	100	Fox, Roy, & Co.
	37	J. Gibbs & Co.
oxide	1 ck.	Brit. Anti-Fouling Compo Co.
Alcohol—	18 dms.	F. V. Tucker
	9	A. H. Wintersgill
	136	E. Davis & Co.
	2, 120	W. M. Smith & Sons

Mineral White—	25 bgs.	J. & R. Grant
Molasses—	150 pks.	R. G. Hall & Co.
	49	Newcomb
	250	Falkenburg & Hesse
Nitre—	17,935 bgs.	W. Montgomery & Co.
Ochre—	161 cks.	W. Harrison & Co.
	13 pks.	Phillips & Graves
	54 cks.	J. Flock
Oxalic Acid—	20 pks.	M. D. Co.
Phosphate Rock—	27 t.	B. Jacob & Sons
Pitch—	12 brls.	L. & I. D. It. Co.
	56	J. E. Powell
	66	Dussek Bros. & Co.
Plumbago—	10 cks.	H. Johnson & Sons
	24	Fellows, Morton, & Co.
	20	R. G. Hall & Co.
	82	Beresford & Co.
	1	Beck & Pollitzer
	777	Ross & Deering
	58	B. Galloway
	412	J. Thredder, Son, & Co.
Potassium Bicarbonate—	10 cks.	A. & M. Zimmermann
Potassium Carbonate—	40 c.	R. W. Greeff & Co.
	80	J. A. Reid
	399	W. G. Blagden
Potassium Chloride—	406 bgs.	Bessler, Waechter, & Co.
Potassium Sulphate—	508 bgs.	Bessler, Waechter, & Co.
Pyrites—	1,255 t.	Naylor, Benzon, & Co.
	850	C. L. Vasey & Co.
Rosin—	8,336 brls.	Moore & Hole
	85	H. Hill & Sons
	1,374	F. & S. Chiesman & Co.
	2,653	F. Nickels & Co.
	500	Perkins & Homer
	1,826	Prod. Brokers' Co.
Rosin Oil—	700 brls.	H. Hill & Sons
	60	Barrett, Tagant, & Co.
Saltpetre—	1,000 bgs.	Anglo-Contl. G. Wks.
	998	C. Wimble & Co.
	1,178	Lucas & Spencer's Wf.
Soda—	1,560 c.	R. Waters
Sodium Acetate—	54 cks.	J. Harrison
Starch—	264 cs.	T. H. Lee
	120	J. Harrison
	426	F. Claydon & Co.
	230	J. Barber & Co.
	300 bgs.	R. G. Hall & Co.
	250	Fellows, Morton, & Co.
	88	L. Sutro & Co.
	25 bxs.	Taylor Bros.
	120 cs.	Sawer, Sons, & Co.
	120	Taylor Bros.
	280	Horne & Co.
	545	H. Johnson & Sons
	20	Phillips & Graves
	40	T. H. Lee
Stearine—	51 bls.	J. Owen
	145 bgs.	H. Hill & Sons
	5	"
Sulphuric Acid—	40 pks.	Elkan & Co.
Ultramarine—	20 cs.	A. B. Curtis & Co.
	14 pks.	J. Barber & Co.
	24 cks.	T. Hamilton & Co.
	14 pks.	Leach & Co.
Varnish—	27 pks.	Taylor Bros.
	6	Dawson Bros.

Verdigris—	3 cks.	B. & F. Wf. Co.
Waste Salt—	208 bgs.	Ekman Pulp & Paper Co.
White Lead—	115 cks.	T. & W. Farmiloe
	14	W. A. Rose & Co.
	2	Randall Bros.
	10	Burrell & Co.
	10	J. L. Lyon & Co.
	10	Perkins & Homer
	21	M. Ashby, Ltd.
	66	"
Wood Pulp—	600 pks.	Hummel & Co.
	160	Christophersen
	51	Andrews, & Co.
	128 coils	C. S. Lovell
	400 pks.	Ross & Deering
	720	Henderson, Craig, & Co.
	400	W. G. Taylor & Co.
	540	Johnsen & Jorgensen
	105	Henderson, Craig, & Co.
	94	Thames S. T. & L. Co.
	1,528	L. & I. D. It. Co.
	6,100	Moreton Cox Bros.
	1,115	W. D. Cork
	990	A. H. Keep
	1	Christophersen & Co.
	314	E. J. & W. Goldsmith
	300 bls.	W. E. Bott & Co.
	1,683 pks.	E. J. & W. Goldsmith
Zinc Oxide—	85 brls.	M. Ashby, Ltd.
	200	"

LIVERPOOL.

Week ending January 7th.

Arsenic—	1 brl.	
Asbestos—	6 cs.	Lunham & Moore
Barytes—	100 bgs.	
	22 cks.	
Borates—	3,209 sks.	Balfour Williamson
	4,002	
Castor Oil—	20 brls.	J. J. Mack & Son
	1,030	170 cs.
Cottonseed Oil—	150 brls.	
Cream of Tartar—	5 cks.	Sachse & Klemm
Dyestuffs—	5 bgs.	Kolp, Kulrander & Co.
	10	S. L. Behrens & Co.
Fustic	2,200 bgs.	G. H. Muller & Co.
Gambler	1,407 bgs.	1,042 bls.
Indigo	6 cs.	J. Blith & Co.
Valonia	181 bgs.	A. Xipolides & Co.
	128	L. Vuzunaras
	801	
Farina—	908 sks.	Cunard S. S. Co., Ltd.
Gelatine—	20 cs.	Co-op. W'sale Society, Ltd.
Glucose—	200 brls.	T. M. Duche & Sons
	150	
Glue—	2 brls.	J. Taylor & Co.
	30 bgs.	
	4 cks.	Co-op. W'sale Society, Ltd.
Limestone—	1 cs.	J. T. Fletcher & Co.
Linseed Oil—	1 cs.	
Manganese Ore—	850 t.	Darwen & Mostyn Iron Co.
Molasses—	1,424 brls.	
Ochre—	10 brls.	Birmingham Colour Co.
	40	
Paint—	38 tins.	Pearson, Bennion & Co.
	1 ck.	
Paraffin Scale—	1,110 brls.	Thompson & Bedford
	378	Anglo-Am Oil Co., Ltd.
Phosphate—	4,150 bgs.	
Phosphate Rock—	1,391 t.	
Phosphoric Acid	15 cks.	
Potash—	107 cks.	Co-op. W'sale Society, Ltd.
Potassium Chlorate—	7 kgs.	N. Johansen & Dahl
Fumice Stone—	1 ck.	
	18 brls.	Goldsworthy & Son
Pyrites—	1,826 t.	Matheson & Co.
Quicksilver—	4 flasks	
Rosin—	5,589 brls.	
Soup—	152 bxs.	
	50 brls.	
	10 cs.	
	2	Lever Bros., Ltd.
Sodium Bichromate—	22 cks.	United Alkal Co.
Starch—	800 bgs.	500 sks.
	25 brls.	J. Armstrong & Co., Ltd.
	420	
	288 cs.	
	190	
Stearine—	13 bgs.	J. T. Fletcher & Co.
	20 bgs.	
Tallow—	104 brls.	
Tartar—	3 cks.	
	9	
Treacle—	2 cs.	
	650 brls.	
Varnish—	8 brls.	1 hf.-brl. 1 bx.
	1	W. A. Warren
Verdigris—	10 brls.	
White Lead—	19 cks.	J. T. Fletcher & Co.
Wood Pulp—	4,831 bls.	H. Tyrer & Co.

MANCHESTER.

Week ending January 9th

Acetic Acid—	16 crbys.	
Ammonia (Liquid)—	10 cs.	
Anthracene—	14 cks.	
Antimony—	2 cks.	
Barytes—	100 bgs.	

Bone Ash—
Rio Grande Do Sul, 477 t.

Chemicals (otherwise undescribed)
Rotterdam, 38 cks.

Colours—
Rotterdam, 33 cks. 31 cs. 5 brls.

Boulogne, 10
Dyestuffs—

Alizarine
Rotterdam, 2 bxs. 11 brls.

Shumac
Palermo, 1,435 bls. 925 bgs.

Glue—
Treport, 10 cks.
Rotterdam, 10 40 bgs.

Logwood—
Laguna, qty.

Ochre—
Treport, 47 cks.

Oxalic Acid—
Rotterdam, 68 cks.

Potash—
Treport, 18 cks.
Rotterdam, 5

Pumice Stone—
Messina, 23 cs. 40 bgs.

Rosin—
Brunswick, G., 3,964 cks.

Soap—
Mersyne, 1 cs.

Sulphuric Acid—
Rotterdam, 10 cs.

Talc—
Genoa, 110 bgs.

Turpentine—
Brunswick, G., 200 cks.

Ultramarine—
Rotterdam, 4 cks. 20 cs.

Wood Pulp—
Rotterdam, 48 rls. 400 pks.
Gothenburg, 60 bbls.
Christiania, 853 bls.
Drammen, 4,997 225 cs.

Zinc Oxide—
Rotterdam, 130 cks.

HULL.

Week ending January 9th.

Barytes—
Rotterdam, 23 cks. Hutchinson & Son

Bremen, 21 Hanger, Watson, & Harris

" 40 Blundell, Spence, & Co.

" 42 Hutchinson & Son

Amsterdam, 47 Wilson, Sons, & Co., Ltd.

Camphor—
Hamburg, 1 ck. Wilson, Sons, & Co., Ltd.

Chemicals (otherwise undescribed)
Bremen, 3 cs. Veltmann & Co.

" 5 cks. Wilson, Sons, & Co., Ltd.

Stettin, 11 "

Bari, 34 pks. "

Dunkirk, 2 cks. "

Antwerp, 8 "

Colours—
Bremen, 2 cks. Veltmann & Co.

Hamburg, 8 Wilson, Sons, & Co., Ltd.

Riga, 65 873 cs. "

Rotterdam, 3 pks. 5 Hutchinson & Son

Fiume, 1 brl. Wilson, Sons, & Co., Ltd.

Antwerp, 1 ck. 1 cs. Wilson, Sons, & Co., Ltd.

Rotterdam, 25 pks. Sons, & Co., Ltd.

Antwerp, 4 cks. 9 cs. W. & C. L. Ringrose

Dunkirk, 37 pks. Bailey & Leatham

Dyestuffs—
Alizarine
Rotterdam, 2 brls. W. & C. L. Ringrose

Cochineal
Hamburg, 1 bl. Wilson, Sons, & Co., Ltd.

Madder
Rotterdam, 1 ck. Hutchinson & Son

Shumac
Trieste, 10 bls. Wilson, Sons, & Co., Ltd.

Farina—
Harlingen, 430 bgs. W. & C. L. Ringrose

Antwerp, 50 Wilson, Sons, & Co., Ltd.

Stettin, 520 "

Glucose—
Stettin, 7 cks. Wilson, Sons, & Co., Ltd.

New York, 875 brls. Hutchinson & Son

Glue—
Rouen, 20 bls. Rawson & Robinson

" 8 Hanger, Watson, & Harris

" 100 sks. 20 cs. Wilson, Sons, & Co., Ltd.

Dunkirk, 30 cks. Hutchinson & Son

Rotterdam, 127 pks. Wilson, Sons, & Co., Ltd.

Naphthol—
Rotterdam, 2 cks. W. & C. L. Ringrose

Ochre—
Rouen, 10 cks. Rawson & Robinson

Oxalic Acid—
Antwerp, 4 cks. Bailey & Leatham

Ozokerit—
Stettin, 265 bgs. Wilson, Sons, & Co., Ltd.

Pitch—
Amsterdam, 12 cks. W. & C. L. Ringrose

Potash—
Dunkirk, 5 pks. Wilson, Sons, & Co., Ltd.

Antwerp, 80 dms. Sons, & Co., Ltd.

Saltpetre—
Hamburg, 80 bgs. Wilson, Sons, & Co., Ltd.

Antwerp, 135 "

Starch—
Ghent, 310 cs. Hutchinson & Son

New York, 19 bxs. Wilson, Sons, & Co., Ltd.

Antwerp, 120 cs. Bailey & Leatham

Ghent, 80 Wilson, Sons, & Co., Ltd.

New York, 250 bgs.

Stearine—
Antwerp, 100 bgs. Wilson, Sons, & Co., Ltd.

Tartaric Acid—
Rotterdam, 1 ck. Hutchinson & Son

Treacle—
New York, 1,145 brls. Wilson, Sons, & Co., Ltd.

" 100 "

Turpentine—
Libau, 53 cks. "

Ultramarine—
Bremen, 12 cks. Hutchinson & Son

Rotterdam, 4 "

Yarnish—
New York, 10 pks. Wilson, Sons, & Co., Ltd.

White Lead—
Rotterdam, 21 cks. Hutchinson & Son

Amsterdam, 55 W. & C. L. Ringrose

Antwerp, 39 Bailey & Leatham

Dunkirk, 10 bls. Wilson, Sons, & Co., Ltd.

Rotterdam, 45 cks. W. & C. L. Ringrose

Wood Pulp—
Bremen, 120 bls. Veltmann & Co.

" 8 Trent Navigation Co.

Christiania, 3,973 pks. Wilson, Sons, & Co., Ltd.

Gothenburg, 719 bls. "

Hango, 231 J. Good & Sons

Hamburg, 20 W. Shipstone & Co.

Zinc White—
Rotterdam, 35 cks. Bailey & Leatham

GLASGOW.

Week ending January 14th.

Alum—
Hamburg, 124 cks.

Alumina—
Antwerp, 30 cks.

Barium Chlorate—
Rotterdam, 4 cks. J. Rankine & Son

Barium Sulphate—
Antwerp, 100 bgs.

Barytes—
Rotterdam, 149 cks. J. Rankine & Son

Antwerp, 100 bgs.

Castor Oil—
Marseilles, 50 cs. C. Windscheuyl & Co. (London)

" 10 497 bls.

Antwerp, 142 cks.

Chemicals (otherwise undescribed)
Rotterdam, 1 cs. J. Rankine & Son

Colours—
Antwerp, 12 cks.

Hamburg, 11 2 cs.

Rotterdam, 20 & qty. J. Rankine & Son

Dyestuffs—
Alizarine
Rotterdam, 1 bx. 36 cks. & qty. J. Rankine & Son

Cutch
Rangoon, 531 bxs. P. Henderson & Co.

Indigo
Rotterdam, 2 cts. J. Rankine & Son

Glue—
New York, 96 cks. J. Rankine & Son

Rotterdam, 20 bgs.

Infusorial Earth—
Rotterdam, 543 bg. J. Rankine & Son

Oxalic Acid—
Rotterdam, 6 cks. J. Rankine & Son

Paint—
Portland, 2 brls.

Marseilles, 38 tins

Paraffin Wax—
Rangoon, 480 bgs. 82 bxs. P. Henderson & Co.

Phosphate of Lime and Rock—
Antwerp, 1,020 bgs.

Potash—
Rotterdam, 83 cks. J. Rankine & Son

Portland, 10 10 brls.

Hamburg, 10

Pyrites—
Huelva, 2,069 t. Tharsis Sulphur & Copper Co.

Salt—
Hamburg, 50 bgs.

Saltpetre—
Hamburg, 2 cks. 100 bgs.

Starch—
Antwerp, 72 cs. 400 sks.

New York, 25 cs. J. Rankine & Son

Baltimore, 400

Rotterdam, 25 cs. J. Rankine & Son

Stearine—
Rotterdam, 17 sks. J. Rankine & Son

Tallow—
New York, 20 brls.

Baltimore, 8 tcs.

Tar Oil—
Hamburg, 5 cks.

Tartar
Bordeaux, 5 cks.

Treacle—
New York, 50 brls.

Ultramarine—
Antwerp, 4 cs.

Rotterdam, 5

Yarnish—
Antwerp, 1 ck. 1 cs. 1 tin

Waste Salt—
Hamburg, 745 cks.

White Lead—
Rotterdam, 57 cks. J. Rankine & Son

Wood Pulp—
Rotterdam, 2 rolls

Christiania, 775 bls. 52 cs.

Oporto, 500

Gothenburg, 520 bndls.

Zinc Oxide—
Antwerp, 1 ck.

Zinc sulphate—
Gothenburg, 50 bgs.

Zinc Sulphide—
Rotterdam, 5 cks. J. Rankine & Son

Zinc White—
Rotterdam, 25 cks. J. Rankine & Son

TYNE.

Week ending January

Barytes—
Rotterdam, 69 cks. Tyne

Antwerp, 460 bgs.

Castor Oil—
Antwerp, 53 brls. Tyne

Cod Oil—
Bergen, 5 brls.

Colours—
Hamburg, 9 cks. Tyne

Glucose—
New York, 100 brls. W.

Glue—
Hamburg, 7 brls. Tyne

Kieselguhr—
Bergen, 307 bgs.

Limestone—
Antwerp, 3 crts. 3

Plumbago—
Hamburg, 6 cks. 17

Quicksilver—
Copenhagen, 100 cytra.

Rosin—
Savannah, 3,000 brls.

Soap—
Rotterdam, 5 cs. 1

Starch—
Rotterdam, 142 cs. 50

Antwerp, 30

Yarnish—
New York, 3 brls.

White Lead—
Antwerp, 20 cks. 1

Wood Pulp—
Christiania, 740 bls.

Zinc Oxide—
Antwerp, 35 brls.

GOOL.

Week ending Jan

Alizarine—
Rotterdam, 6 cks.

Antimony—
Boulogne, 9 cks.

Barytes—
Antwerp, 34 cks.

Bog Ore—
Delfsryhl, 200 t.

Caoutchouc—
Boulogne, 4 cks.

Colours—
Hamburg, 6 cks.

Rotterdam, 21

Dyestuffs (otherwise)
Boulogne, 51 cks.

Farina—
Harlingen, 400 bgs.

Amsterdam, 10

Logwood—
Jamaica, 407 t.

22 cks.	96 dms.	20 bxs.	Chemicals (otherwise undescribed)	Plumbago—
	20		Hamburg, 5 cks. 8 cs.	Hamburg, 1 ck. 7 cs.
	29		Antwerp, 8	Starch—
				Hamburg, 1 cs.
1,100 l.			Colours—	Wood Pulp—
			Hamburg, 12 cs. 35 pks.	Malmo, 506 bls.
4,400 brls.			Antwerp, 67	Zinc Ashes—
3,075			Rotterdam, 1 ck.	Antwerp, 2 cks.
			Farina—	
			Hamburg, 400 bgs.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.	Coal Products—	Melbourne, 1 8 58	Lisbon, 10 14
ending January 13th.	Allzarine	Potassium Chlorate—	Fairwater, 2 56
id—	Lyttelton, 11 pks. £155	Boston, 1 t. £41	B. Ayres, 7 c. 3 q. 10
10 cs. £23	Aniline, 1 cs. £15	Sydney, 5 180	New York, 8 14
52 cs. £108	Aniline Oil	Potassium Permanganate—	Paris, 1 3 37
10 t. £56	Dunkirk, 10 dms. £450	Melbourne, 10 kgs. £34	Ammonium Chloride—
(Liquid)—	Genoa, 20 900	Potassium Prussiate—	Alexandretta, 1 t. 7 c. £44
25 dms. £183	New York, 5 220	Antwerp, 17 cks. £172	Rotterdam, 1 5 9
m Carbonate—	Aniline Salts	Marseilles, 1 c. 16	Barcelona, 1 8 27
6 c. £12	New York, 126 cks. £1,295	Lisbon, 10 25	Hiogo, 1 5 23
120 pks. 480	Benzol	Yokohama, 5 cs. 32	Bombay, 1 15 60
m Chloride—	Amsterdam, 18 dms. £480	Salicylic Acid—	Salonica, 2 5 50
2 cks. £18	Rotterdam, 50 cks. 329	Sydney, 6 cs. £49	Paris, 15 2 q. 23
2 t. 70	Creosote Salts	Saltetre—	Amsterdam, 6 11
7 brls. 38	Philadelphia, 776 bgs. £162	Algoa Bay, 9 c. £10	Ammonium Sulphate—
m Sulphate—	Naphtha	Rio de Janeiro, 2 t. 19 66	Messina, 10 t. 3 c. 3 q. £75
20 t. £155	Bombay, 2 dms. £5	Sheep Dip—	Rouen, 10 3 75
78 585	Naphthaline	E. London, 658 pks. £160	Burriana, 52 7 390
10 75	Stettin, 1,373 bgs. £305	Algoa Bay, 300 dms. 25	Valencia, 40 1 434
5 40	New York, 87 cks. 94	Cape Town, 2,000 200	Las Palmas, 44 * 356
50 390	Pitch	Punta Arenas, 150 pks. 165	Sourabaya, 129 9 3 1,006
50 410	Antwerp, 430 t. £796	San Francisco, 100 cs. 150	Samarang, 38 304
530 4,080	Dunkirk, 1,635 2,480	Natal, 400 53	Teneriffe, 3 24
	Alexandria, 250 brls. 78	Bombay, 400 50	Genoa, 55 10 454
	Terneuzen, 501 889	B. Ayres, 35 400 815	Arsenic—
	Boston, 100 cks. 55	Soda—	Rouen, 9 t. 19 c. 1 q. £234
	Pitch and Tar	Havre, 11 c. £66	Bleaching Powder—
	Dunedin, 17 brls. 10 dms. £16	Cape Town, 2 t. 50	Alexandria, 3 cks.
	Prussian Blue	Port Said, 15 5	Baltimore, 58
	Rotterdam, 4 cks. £13	Lyttelton, 17 17	Bombay, 59 t. 10 cs.
	Pyridine	Kotterdam, 5 9 31	Boston, 59 t. 10 cs.
	Amsterdam, 28 cks. £378	Soda Crysta's—	Calcutta, 51 51
	Tar	Algoa Bay, 4 t. 9 c. £12	Lisbon, 20
	Kingston (Jam.) 15 brls. 6	Sodium Bicarbonate—	Newport News, 262
	Wellington, 35 pks. 7	Singapore, 1 t. 2 c. £7	New York, 619
	Algoa Bay, 120 dms. 146	Algoa Bay, 15 11	Paris, 28
	Malaga, 130 40	Penang, 4 5	Philadelphia, 116
	Natal, 350 40	Jaffa, 1 3 11	Rouen, 43 6
	Tar Oil	E. London, 7 5	Santos, 6
	Stettin, 50 cks. £30	Sulohur—	Sone Ash—
	Hamburg, 150 75	Algoa Bay, 4 t. 9 c. 75 cs. £67	Marseilles, 10 t. 1 q. £180
	Copper Sulphate—	Rotterdam, 20 110	Soracic Acid—
	Colombo, 6 c. £5	Sulphuric Acid—	Rotterdam, 2 t. 5 c. £60
	Batoum, 18 t. 2 320	Natal, 31 cs. £25	Borax—
	Odessa, 50 5 908	Superphosphates—	Rotterdam, 5 t. 16 c. £119
	Cream of Tartar—	Madras, 20 t. £79	Antwerp, 2 4 2 q. 21
	Launceston, 5 kg. £21	Guernsey, 2 40	Stettin, 15 15 1 312
	Dunedin, 1 t. 3 c. 51	Tartaric Acid—	Danzig, 15 15 1 312
	Auckland, 20 88	Boulogne, 1 ck. £30	Kustendjie, 5 13 105
	Fremantle, 10 44	Launceston, 2 kgs. 17	Carbolic Acid—
	Delagoa Bay, 1 cs. 10	Dunedin, 4 c. 10	Shanghai, 13 c. £49
	Sydney, 50 200	Madras, 4 cs. 13	Barcelona, 1 t. 10
	Cy-nide—	Lyttelton, 5 26	Toronto, 1 5 87
	Port Darwin, 2 pks. £16	Cape Town, 2 11	Marseilles, 1 0 2 q. 93
	Disinfectants—	Algoa Bay, 5 27	B. Ayres, 4 12 3 111
	Penang, 50 dms. £13	Hiogo, 5 20	Calcutta, 4 dms. 3 cs. 11
	Auckland, 13 cs. 39	Yokohama, 10 58	Rouen, 1 2 q. 91
	Newcastle, 1 hd. 11	Adelaide, 40 212	N. Orleans, 9 39
	Hamburg, 40 pks. 10	Melbourne, 20 104	Genoa, 11 3 43
	Brisbane, 105 14 cs. 17	Sydney, 14 55	Hamburg, 1 2 1 76
	Bombay, 35 17	Zinc Chloride—	Caustic Potash—
	Lead Sulphate—	Rotterdam, 4 dms. £14	New York, 8 t. 18 c. £731
	Shanghai, 10 cks. £69		Caustic Soda—
	Manure—		Acajutla, 35 dms.
	Guernsey, 15 t. 4 c. £77		Alicante, 60
	Bordeaux, 30 85		Amsterdam, 241
	Cherbourg, 175 612		Aracaju, 20
	Nantes, 100 1,100		Bilbao, 27 cks.
	Jersey, 265 3 1,638		Boston, 50 108
	Martinique, 92 6 795		B. Ayres, 100
	Guatemala, 2 6 25		Calcutta, 274
	Cape Town, 1 7		Callao, 30
	Mirbane Oil—		Delagoa Bay, 6
	Brussels, 27 dms. £47		Eten, 5
	Hamburg, 1 runlet 12		Genoa, 64
	Myrbane—		Hamburg, 35
	Wellington, 3 cs. £10		Kingston, 18
	New York, 45 155		La Guayra, 10
	Oxalic Acid—		Lisbon, 3
	Brisbane, 3 cks. £32		Malaga, 50
	Potash—		Manila, 150
	Wellington, 1 t. 8 c. £58		M. Video, 25
			Naples, 92

LIVERPOOL.

Week ending January 13th.

Albumen—	Portland, 7 c. £58
Alum—	M. Video, 2 t. 4 c. 1 q. £13
	B. Ayres, 5 1 1 23
	Cuba, 2 17
	Beyrou, 1 5 6
	Smyna, 2 15 13
	Constantinople, 2 16 3 13
Ammonium Carbonate—	Ancona, 10 c. £14
	Rotterdam, 15 21
	Odessa, 6 t. 168
	Philadelphia, 1 5 40

New York,	235	50
Paris,	30	
Pernambuco,	75	
Philadelphia,	345	
Portland, M.,	45	
Or.,	100	
Port Natal,	200	
Rotterdam,	60	
Salaverry,	10	
Samarang,	18	
Santos,	58	
Singapore,	10	
Sourabaya,	120	
Chemicals (otherwise undescribed)		
Antwerp,	1 t.	£30
Sydney,	15 c.	25
Lagos,	1 cs.	1
Constantinople,	5	164
Hamburg,	10	17
Genoa,	1	26
Bombay,	6 15	250
Philadelphia,	14 10	435
Barcelona,	1	27
China Clay—		
Barcelona,	500 bgs.	
Bombay,	136 cks.	
Boston,	1,616	
Calcutta,	176	
Genoa,	30	
Maranham,	15 60	
Naples,	50	
Pernambuco,	22	
Philadelphia,	100	
Portland, M.,	720	
Rio de Janeiro,	16	
Coal Products—		
Aniline Colours		
Portland, M.,	2 cks.	
Yokohama,	18 cs.	
Aniline Dyes		
Portland, M.,	13 brls.	
Aniline Salts		
Boston,	20 cks.	
Philadelphia,	43 cs.	
Smyrna,	5	
Pitch		
Rouen,	8 brls.	
Tar		
Samarang,	75 brls.	
Coal Products (otherwise undes.)—		
Barcelona,	29 cks 7 kgs.	
Bombay,	2	
Boston,	20 cs. 1 5 dms.	
B. Ayres,	10	
Cobalt Oxide—		
Leghorn,	1 bx.	£9
Copper Sulphate—		
Valparaiso,	4 t. 19 c. 1 q.	£85
Piræus,	1	17
Tampico,	15	248
Dunedin,	1	17
Melbourne,	5	43
Smyrna,	18 3	15
Trieste,	9 19	166
Fiume,	3	10
Ancona,	5 4	80
Bari,	7 3 1	109
Rouen,	5	88
Nantes,	15 2 2	215
Venice,	143 9 3	2,310
Oran,	14 15	241
Bone,	10 13	127
Algiers,	10 10	835
Philippville,	9 10	168
Lisbon,	12 11	209
Brindisi,	11 15 1	194
Naples,	68 15	1,003
Bordeaux,	332 4 1	5,480
Bayonne,	14 17	231
Antwerp,	10	16
Genoa,	38 18	601
Victoria,	10	2
Leghorn,	43 10	708
Copperas—		
Gd. Canary,	9 t. 14 c. 3 q.	£24
Cream of Tartar—		
Constantinople,	1 c. 3 q.	£5
Disinfectants—		
Madras,	13 c.	£9
New York,	1 t. 13 1 q.	34
Antofagasta,	3 3	5
Dried Blood—		
Teneriffe,	17 t. 14 c. 2 q.	£120
Guano—		
Teneriffe,	5 t. 13 c. 3 q.	£17
Gypsum—		
Rio de Janeiro,	1 t. 4 c. 1 q.	£4
Indigo Dust—		
Bahia,	1 t.	£157
Indigo Waste—		
New York,	5 t. 13 c. 2 q.	£134
Lime—		
Las Palmas,	5 t.	£10
C. C. Castle,	11 5 c.	30

Magnesia—		
Paris,	10 cs.	
Tampico,	3	
Magnesium Sulphate—		
Bombay,	40 bgs.	
Honolulu,	20 cs.	
Manure—		
Bordeaux,	2 t. 11 c. 1 q.	£16
Las Palmas,	14	57
Oxalic Acid—		
Boston,	5 t. 16 c.	£165
Copenhagen,	1 18	80
Paint—		
Accra,	21 kgs.	
Alexandria,	245	
Antofagasta,	6 cks.	1 cs.
Bilbao,	6 bxs.	
Bonny,	10 pks.	
Calcutta,	4	
Callao,	11	101
Cape Town,	3 330	12
Cartagena, S.A.,	44	
Colon,	14	
Constantinople,	1	
Eten,	92	
Gibraltar,	39 pks.	
Hamburg,	21	
Havana,	8	
Honolulu,	66 275	
Kingston,	12 brls. 4	
Malta,	21	
Maranham,	5 1	
M. Video, 50 dms.		
New York,	7 85	
Old Calabar,		3
Pisco,	4	
Port Natal,	30	
Rangoon,	8	
St. Thomas,	24	
San Juan,	120	
Santiago de Cuba,	2	
Sierra Leone,	220	
Smyrna,	200	
Talcahuano,	65	
Tampico,	25	1
Vera Cruz,	25	
Painters' Colours—		
Alexandria,	50 cks.	
Antwerp,	10	
Aracaju,	17	2 cs.
Baltimore,	52	
Barbadoes,	1	
Bremen,	350 bgs.	
New York,	5	
Para,	23 tcs.	90 kgs. 16 brls.
Parnahiba,		4 cs.
Rio de Janeiro,	18	9 brls.
Santos,		
Victoria, B.C.,	1	
Paraffin Wax—		
Alexandria,	8 cs.	
Bari,	20 bgs.	
Genoa,	12	
Leghorn,	34	
Lisbon,	10	
Salonica,	10	
Sourabaya,	10 10	
Syria,	31	
Phosphorus—		
Hiogo,	2 t. 5 c.	£510
Shanghai,	2 3	440
Paranagua,	4	60
Potash Salts—		
Corinto,	4 t. 19 c. 3 q.	£400
Potassium Bichromate—		
Beyrout,	7 c.	£14
Potassium Carbonate—		
New York,	18 t. 6 c.	£380
Potassium Chlorate—		
Reval,	8 t. 5 c.	£327
New York,	15 10	607
Philadelphia,	21	945
Livau,	10	364
Bari,	5 14	106
Leghorn,	8 18	136
Naples,	9 5	150
Pernambuco,	1 5	40
Vera Cruz,	1 5	43
Hong Kong,	1	39
Hiogo,	15	520
Rotterdam,	3 15	139
St. Petersburg,	10	390
Hamburg,	3 5	106
Potassium Permanganate—		
Bombay,	5 c. 1 q.	£30
Potassium Prussiate—		
Genoa,	2 t. 13 c.	£220
Salt—		
Accra,	5 t.	
Adelaide,	85 19 c.	
Antwerp,	200	
Baltimore,	200	
Boston,	300	

B. Ayres,	20	7
Calcutta,	345	
Cameroon,	25	2
Cape Coast,	5	
Copenhagen,	252	
Ghent,	250	
Kotonon,	1	17½
Lagos,	90	
N. Orleans,	129	15
New York,	460	
Old Calabar,	50	
Opobo,	200	
Para,	300	
Portland, Me.,	50	
Quillo,	50	
Rosario,	4	
Rouen,	15	
Rotterdam,	105	
St. John, N.B.,	208	
Valparaiso,	102 2	
Vancouver,	17 7	
Salt Cake—		
Antwerp,	52 t. 5 c.	£58
Terneuzen,	191 10	259
Saltpetre—		
Acapulco,	1 t. 1 c. 1 q.	£26
Valparaiso,	3 10	77
Sheep Dip—		
M. Video,	13 t. 12 c.	£274
Bombay,	9	200
B. Ayres,	8 18 1 q.	370
Cape Town,	25 cks. 1 cs. 18 c.	22
Soap—		
Accra,	320 bxs.	
Addah,		20 cs.
Alexandria,		5 dms. 30
Algoa Bay,	450	13 brls. 20
Amboina,	500	
Amsterdam,	160	
Antigua,	60	
Bagdad,		27 pks.
Barbadoes,	1,550	
Batavia,	1,000	
Benin,	400	
Bombay,	1,960	
Boston,		153
B. Ayres,		1,000
Callao,		25
Cape Coast,	324	
Cape Town,	1,000	
Colombo,		4
Curacao,	236	
E. London,	1,765	10
Gibraltar,	400	25
Guayaquil,	40	
Halifax,		200
Hong Kong,		10
Honolulu,		8
Karachi,	500	11
Kingston,		41
Las Palmas,	133	
Manaos,	250	
Menado,	1,500	
New York,		1,038
Penang,	200	15
Philadelphia,		1,300
Pisagua,		1
Piræus,		9
Pt. Elizabeth,	480	50
Portland, Me.,		501
Pt. Natal,	2,625	106
Rotterdam,	200	220
St. Nazaire,	25	
St. John's, N'd.,	230	
St. Lucia,	155	
St. Thomas,	100	
Santa Antonio,	10	
Savannah,		8
Santos,	1	
Sapeli,	400	
Shanghai,	5,973	
Sierra Leone,	766	2
Singapore,	2,750	
Sourabaya,		40
Teneriffe,	75	
Trinidad,	1,200	
Valparaiso,	100	
Victoria, B.C.,	50	
Warri,	1,065	
Zante,		5
Soda Alkali—		
Genoa,	35 brls.	
Messina,	15	
Soda Ash—		
Antwerp,	200 kgs.	
Baltimore,	1,200 bgs.	
Barcelona,		20 cks.
Bombay,		30
B. Ayres,	2,120 87 tcs.	50
Calcutta,	250 brls. 265	254
Genoa,	500	
Ghent,		6
Gothenburg,		22
Leghorn,	200	

Lisbon,		
Maranham,		20
M. Video,		
Newport News,		
New York,	12,648	235 t
Patras,		10 b
Philadelphia,	5,200	281 t
Portland, Me.,	440	
Portland, Or.,		25
Rio de Janeiro,		100 b
Samarang,		
Santos,		
Yokohama,		
Zante,		413
Soda Crystals—		
Alicante,	25 bgs.	
Boston,	150	
B. Ayres,		34 b
Calcutta,		33 kgs.
Cape Town,	19	
Demerara,		
M. Video,	50	30
Philadelphia,		
Portland, Me.,	100	
Sodium Bicarbonate—		
Algoa Bay,	40 kgs.	
Amsterdam,	50	
Antwerp,	10	
Barcelona,	90	
Bari,	92	
Bombay,		1 b
Bremen,	15	
B. Ayres,	430 bgs.	
Calcutta,	145 kgs.	
Constantinople,	130	
Copenhagen,	40 bgs.	
E. London,	70	
Fiume,	30 kgs.	
Genoa,	60	30
Halifax,	100	
Hamburg,	75	
Hong Kong,	10	
Karachi,	500	
Madras,	150	
Malaga,		30 ds
Marseilles,	20	
M. Video,	140	
Mossel Bay,	10	
Odessa,	120	
Paris,	135	
Pt. Elizabeth,	25	
Portland, Me.,	212	
Pt. Natal,	60	
Rangoon,	100	
Rotterdam,	40	
Santos,	50	
Sydney,	100	
Tampico,	20	
Vera Cruz,	10	
Yokohama,	1,000	
Sodium Bichromate—		
Syria,		2 brl
Sodium Carbonate—		
Genoa,	27 cks.	
New York,		50 brl
Para,		2
Sodium Chlorate—		
Boston,	125 kgs.	
Tampico,	20	
Sodium Hyposulphite—		
Adelaide,	40 bgs.	
Sodium Silicate—		
Antwerp,		5 brl
B. Ayres,	10 cks.	
Constantinople,	10	
Hamburg,	16	
Oporto,	20	
Piræus,	100 bgs.	
Sodium Sulphate—		
Rio de Janeiro,	30 kgs.	
Trieste,		15 brl
Starch—		
Oporto,	10 kks.	
Sulphur—		
Boston,	150 t.	4 c.
Sulphuric Acid—		
Maranham,		18 c.
Superphosphates—		
Valencia,	90 t. 16 c.	
Bordeaux,	275	6
Hayre,	10	1
Bilbao,	102	1
Las Palmas,	45	1
Tartrac Acid—		
New York,		4 c.
Varnish—		
Leghorn,		6 cs.
Naples,		4
Oporto,		2
Portland, Me.,	1 c.	5
Seville,		9
Valparaiso,		24 dm

White Lead—

Algoa Bay,	130 dms.
Aracaju,	30 cks.
Bahia,	40
Pernambuco,	10 kgs.

Zinc Chloride—

Bombay,	1 t. 6 c. 2 q. £19
---------	--------------------

MANCHESTER.

Week ending January 13th.

Albumen—

Paris,	4 cks.
--------	--------

Alum—

Beyrout,	25 cks.
----------	---------

Alumina Acetate—

Paris,	6 cks.
--------	--------

Aluminium—

Hamburg,	5 t.
----------	------

Ammonium Sulphate—

Rouen,	188 bgs.
--------	----------

Aniline Colours—

Hamburg,	13 kgs. 3 cs.
----------	---------------

Aniline Oil—

Hamburg,	5 dms.
----------	--------

Carbolic Acid—

Rotterdam,	30 cks.
------------	---------

Caustic Soda—

Alexandria,	20 dms.
-------------	---------

Colours—

Bushire,	32 cs.
----------	--------

Copper Sulphate—

Beyrout,	1 ck.
----------	-------

Copperas—

Aleppo,	50 brls.
---------	----------

Cottonseed Oil—

Tunis,	60 cks.
--------	---------

Dyestuffs (otherwise undescr.)

Rouen,	8 cks.
--------	--------

Glue—

Rotterdam,	10 cks.
------------	---------

Naphthol—

Hamburg,	6 bgs.
----------	--------

Pitch—

Cette,	861 t.
--------	--------

Soda Bottoms—

Rotterdam,	54 dms.
------------	---------

Soda Crystals—

Sfax,	10 bgs.
-------	---------

Tar Oil—

Treport,	26 cks.
----------	---------

HULL.

Week ending January 9th.

Alkali—

Messina,	10 cks.
----------	---------

Ammonium Sulphate—

Dunkirk,	735 bgs.
----------	----------

Anthracene—

Rotterdam,	50 cks.
------------	---------

Benzol—

Rotterdam,	24 cks.
------------	---------

Bleaching Powder—

Fiume,	23 cks.
--------	---------

Caustic Soda—

Hango,	22 cks.
--------	---------

Chemicals (otherwise undescr.)

Antwerp,	26 cs.
----------	--------

China Clay—

Riga,	640 bgs.
-------	----------

Trieste,

Trieste,	190
----------	-----

Cottonseed Oil—

Antwerp,	372 c.
----------	--------

Dyestuffs (otherwise undescr.)

Boston,	8 cks.
---------	--------

Guano—

Dunkirk,	310 sks.
----------	----------

Linseed Oil—

Antwerp,	180 c.
----------	--------

Mineral White—

Bergen,	70 bgs. 1 cs.
---------	---------------

Painters' Colours—

Antwerp,	1 ck. 2 dms.
----------	--------------

Pitch—

Antwerp,	66 t.
----------	-------

Soap—

Drontheim,	111 cs.
------------	---------

Starch—

Copenhagen,	60 cs.
-------------	--------

Tallow—

Stockholm,	5 cks.
------------	--------

Tar—

Amsterdam,	6 cks.
------------	--------

Treacle—

Drontheim,	126 cks.
------------	----------

Varnish—

Antwerp,	1 ck.
----------	-------

Wax—

Norrköping,	1
-------------	---

Stockholm,

Stockholm,	2 cs.
------------	-------

GLASGOW.

Week ending January 14th.

Acids—

Bombay,	£2,100
---------	--------

Alumina Sulphate—

Dunedin,	£28
----------	-----

Ammonium Sulphate—

Bombay,	5 t. 14 1/2 c.
---------	----------------

Bleaching Powder—

Sydney,	9 t. 15 1/2 c.
---------	----------------

Coal Products—

Aniline Dyes	£25
--------------	-----

Creosote

France,	£500
---------	------

Naphtha

France,	£80
---------	-----

Pitch

Ancona,	£1,604
---------	--------

France,

France,	200
---------	-----

U.S.A.,

U.S.A.,	500 t.
---------	--------

Bombay,

Bombay,	45
---------	----

Tar

Christiania,	£13, 158.
--------------	-----------

U.S.A.,

U.S.A.,	£105
---------	------

Bombay,

Bombay,	91
---------	----

Karachi

Karachi,	172
----------	-----

Tar Acids

U.S.A.,	£35
---------	-----

Coal Products (otherwise undescr.)

Rotterdam,	£300
------------	------

Christiania,

Christiania,	49
--------------	----

Cod Oil—

Dunedin,	£49
----------	-----

Dyestuffs (otherwise undescr.)

Dunedin,	£35
----------	-----

Extracts—

Montreal,	£20 138.
-----------	----------

Farina—

Rio de Janeiro,	2 t.
-----------------	------

Gelatine—

Auckland,	£40
-----------	-----

Guano—

Dunedin,	20
----------	----

Linseed Oil—

Jamaica,	10 t. 6 1/2 c.
----------	----------------

Dunedin,

Dunedin,	12 18 1/2
----------	-----------

Iquique,

Iquique,	1 18
----------	------

Durban,

Durban,	12 2 1/2
---------	----------

Rio de Janeiro,

Rio de Janeiro,	12 2 1/2
-----------------	----------

Litharge—

Johannesburg,	£21
---------------	-----

Logwood—

Lyttelton,	£65
------------	-----

Magnesium Sulphate—

E. London,	£25
------------	-----

Sydney,

Sydney,	3 t. 10 c.
---------	------------

Paint—

Bengali,	£37
----------	-----

Dunedin,

Dunedin,	36
----------	----

Bombay,

Bombay,	74
---------	----

Calcutta,

Calcutta,	275
-----------	-----

Cape Town,

Cape Town,	qty.
------------	------

Freemantle,

Freemantle,	£43, 108.
-------------	-----------

Jamaica,

Jamaica,	24
----------	----

Painters' Colours—

Calcutta,	£150
-----------	------

Malta,

Malta,	£32, 168.
--------	-----------

Rotterdam,

Rotterdam,	£15
------------	-----

Iquique,

Iquique,	234
----------	-----

Sydney,

Sydney,	234
---------	-----

Paraffin Wax—

Cape Town,	£52
------------	-----

Fiume,

Fiume,	725
--------	-----

Trieste,

Trieste,	613
----------	-----

Venice,

Venice,	90
---------	----

King William's Town,

King William's Town,	75
----------------------	----

Potassium Bichromate—

Venice,	£98
---------	-----

Bombay,

Bombay,	33
---------	----

Sydney,

Sydney,	50
---------	----

U.S.A.,

U.S.A.,	741
---------	-----

Potassium Cyanide—

Valparaiso,	£200
-------------	------

Potassium Sulphate—

Sydney,	5 t.
---------	------

Salt—

Calcutta,	5 t. 1 1/2 c.
-----------	---------------

Sheep Dip—

Punta Arenas,	£220
---------------	------

B. Ayres,

B. Ayres,	75
-----------	----

Soap—

Calcutta,	1 t. 10 c.
-----------	------------

Cape Town,

Cape Town,	1 15
------------	------

Johannesburg,

Johannesburg,	2 9 1/2
---------------	---------

Starch—

Rio de Janeiro,	£28
-----------------	-----

Sulphur—

Iquique,	5 t.
----------	------

Sulphuric Acid—

Durban,	£80
---------	-----

Tallow—

Iquique,	1 t. 2 1/2 c.
----------	---------------

Rotterdam,

Rotterdam,	13 17
------------	-------

Treacle—

Pretoria,	1 t. 10 c.
-----------	------------

Christiania,

Christiania,	21 3
--------------	------

Varnish—

Calcutta,	£21
-----------	-----

White Lead—

Calcutta,	£104
-----------	------

Amsterdam,

Amsterdam,	5
------------	---

Auckland,

Auckland,	91
-----------	----

Zinc White—

Calcutta,	£256
-----------	------

PRICES CURRENT.

WEDNESDAY, JANUARY 20TH 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	&	8/9
Glacial				40/-
Arsenic S.G., 2000°		1	4	0
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.		0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous		0	0	1½
Oxalic	nett	0	0	3½
Phosphoric, 1750°		0	0	11½
Picric		0	0	11
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)		5	10	0
(Pyrites, 168°)		3	0	0
(free from arsenic, 145°)		1	5	0
Sulphurous (solution) S.G. 1025		3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric		0	1	1
Arsenic, white powdered	nett per ton	24	0	0
Alum (loose lump)		4	10	0
Alumina Sulphate (pure)		4	2	6
Aluminoferrous		2	5	0
Aluminium (Ingot metal 98/99½ %)	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	4
880=28° B.		0	0	2½
=24° B.		0	0	1½
Carbonate	nett	0	0	3
Muriate	per ton	19	15	0
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
Nitrate	per ton	33	0	0
Phosphate	per lb.	0	0	4½
Sulphate (grey) London	per ton	8	0	0
(grey) Hull		7	17	6
Aniline Oil (pure)	per lb.	0	0	9½
Aniline Salt		0	0	8½
Antimony	per ton	31	0	0
(tartar emetic)	per lb.	0	0	9½
(golden sulphide)		0	0	10
Barium Chloride	per ton	7	0	0
Carbonate (native)		3	10	0
Sulphate (native levigated)		42/6	&	65/-
Bleaching Powder, 35 %	nett	6	12	6
Liquor, 7 %		3	10	0
Bisulphide of Carbon		13	10	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk		15/-	&	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	7
Magenta		0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	9
Benzol, 90's	per gallon	0	3	6
50/90		0	3	0
Carbolic Acid (crude 60°)	per gallon	0	2	1
(crystallized 40°)	per lb.	0	0	7½
(liquid 95/97 %)	per gallon	0	0	10
Creosote (ordinary)		0	0	2
(filtered for Lucigen light)		0	0	2½
Crude Naphtha 30 % @ 120° C.		0	1	1
Grease Oils, 22° Tw.	per ton	2	15	0
Pitch, f.o.b. Liverpool or Garston		1	6	6
Solvent Naphtha, 90 % at 160°	per gallon	0	1	7
Copper	per ton	50	12	6
Sulphate		19	0	0
Oxide (copper scales)		45	0	0
Glycerine (crude)		37	10	0
(distilled S.G. 1250°)		70	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	10	0
Sulphide (antimony slag)		2	0	0
Lead (sheet) for cash		13	5	0
Litharge Flake (ex ship)		14	15	0
Acetate (white)		22	10	0
brown		15	0	0
Carbonate (white lead) pure		16	15	0
Nitrate		18	10	0
Lime, Acetate (brown) (ex ship)	per ton	51	0	0
(grey) (ex ship)		8	5	0
Magnesium (ribbon and wire)	per oz.	0	2	3
Chloride (ex ship)	per ton	2	7	6
Carbonate	per cwt.	1	17	6
Calcined Magnesia	per ton	8	15	0
Sulphate (Epsom Salt)	per ton	2	15	0
Manganese, Sulphate		16	10	0
Borate	per cwt.	2	10	0
Ore, 70 %	per ton	3	10	0
Methylated Spirit, 61° O.P.	per gallon	0	1	8
Naphtha (Wood), Solvent		0	2	8
Miscible, 60° O.P.		0	2	9
Oils:—				
Cotton-seed	per ton	16	0	0
Linseed		17	0	0
Petroleum, American	per gallon	0	0	7
Stearine	per ton	20	0	0
Phosphorus (yellow)	per lb.	0	2	2
(red)		0	2	8
Potassium (metal)	per oz.	0	3	7
Bichromate	per lb.	0	0	4½
Carbonate, 90 % (ex ship)	per ton	17	15	0
Chlorate	per lb.	0	0	4½
Cyanide, 98 %		0	0	11½
Hydrate (Caustic Potash) 90 %	per ton	24	5	0
(Caustic Potash) 75/80 %		20	10	0
(Caustic Potash) 70/75 %		20	0	0
Nitrate (refined)	per cwt.	1	1	6
Permanganate	per cwt.	3	17	6
Prussiate Yellow	per lb.	0	0	5½
Sulphate, 90 % (ex ship)	per ton	9	15	0
Muriate, 80 % (do.)		8	10	0
Silver (metal)	per oz.	0	2	5½
Sodium (metal)	per lb.	0	2	11
Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
(Caustic Soda-ash) 48 %		4	5	0
(Carb. Soda-ash) 48 %		4	0	0
(Alkali) 58 %		3	10	0
(Soda Crystals)		2	0	0
Acetate (ex-ship)		14	5	0
Arseniate, 45 %		14	10	0
Chlorate	per lb.	0	0	5
Borate (Borax)	net, per ton	19	0	0
Bichromate	per lb.	0	0	3½
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton		9	5	0
(74 % Caustic Soda)		8	2	6
(70 % Caustic Soda)		7	2	6
(60 % Caustic Soda)		6	2	6
(pure liquor 90° Tw.)		3	15	0
77.78 % powdered (99 % hydrate)		13	10	0
Bicarbonate		6	10	0
Hyposulphite		5	5	0
Manganate, 25 %		15	0	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8	0
Nitrite, 98 %	per ton	30	0	0
Phosphate		12	10	0
Silicate (glass)	per ton	4	10	0
(liquid, 100° Tw.)		3	10	0
Stannate, 40 %	per cwt.	3	2	9
Sulphate (Salt-cake)	per ton	1	0	0
(Glauber's Salts)		1	7	6
Sulphide		6	15	0
Sulphite		5	0	0
Strontium Hydrate, 100 %		8	0	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	6½
Barium, 95 %		0	0	4½
Potassium		0	0	6½
Sulphur (Flowers)	per ton	7	10	0
(Roll Brimstone)		6	10	0
Brimstone: Best Quality		4	15	0
Superphosphate of Lime (26 %)		2	15	0
Tallow		18	5	0
Tin Crystals	per lb.	0	0	4½
English Ingots	per ton	65	10	0
Zinc Spelter		17	17	6
Chloride (solution, 100° Tw.)		5	2	6

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

No. 506.

SATURDAY, JANUARY 30, 1897.

Vol. XX.

Contents.

PAGE	PAGE
and Smoke	93
Problem of Smoke Consumption	94
Recent List	95
Its of Latest Complete Specimens	95
Treatment of Sewage	95
Car Notes	96
Triage of Acids at Sea	96
Output in the Rand	97
Chemical Education in Germany	97
of Chemical Industry	97
Statistical Jottings	98
States Mineral Production	98
Exports	98
Prices Current	99
Selected Correspondence	99
An Interesting Sugar Prosecution	99
Trade Notes	100
Tar and Ammonia Products	100
Miscellaneous Chemical Market	100
Liverpool Oil and Colour Market	101
Report on Manure Material	101
The Metal Markets	101
West of Scotland Chemicals	101
Tyne Chemical Report	101
Hull Paint, Oil, and Colour Report	102
New Companies	102
Imports	102
Exports	105
Prices Current	108

ADVERTISEMENTS.

WHO can give Addresses of China Clay Works?—Apply to "Clay," *Chemical Trade Journal* Office, Manchester.

TOILET SOAP.—Wanted a Manager for Toilet Soap Department; must have a practical experience of a Toilet Soap Works. Age, salary, experience, and references, to Lever Bros., Limited, Loughborough, near Birkenhead.

FIRST-CLASS TECHNICAL CHEMIST.—Well acquainted with the Manufacture of all the Raw Materials and Intermediate Products for Aniline and Tar Colours, wishes to correspond with firm willing to take up this business; or Advertiser would accept a man as Head Chemist.—Apply, "A333," *Chemical Trade Journal* Office, Manchester.

Notices.

Communications for the *Chemical Trade Journal* should be sent to the Editor, and Cheques and Post Office Orders made payable to—**DAVIS BROS., 32, Blackfriars Street, MANCHESTER.**

Our Registered Telegraphic Address is—**"Expert, Manchester."**

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, to the *Chemical Trade Journal*,—payable in advance,—including postage part of the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and other Wants, and Specific Articles for Sale by Private Contract are charged in the *Chemical Trade Journal* at the following rates:—

30 Words and under	2s. 6d. per insertion.
Each additional 10 words	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the rates when prepaid, viz.:—

30 Words and under	1s. 6d. per insertion.
Each additional 10 words	0s. 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

SEWAGE AND SMOKE.

THE two S's, as they are sometimes spoken of, would, we think, have proved fitting modern surroundings for Tantalus himself. The further we go the deeper we seem to get into the mire, and the farther away is the end desired.

This, no doubt, is due to the simple fact that if you choose a path and follow it, without taking the trouble to note that the finger-post states, "This way to Miry Green and Muddledom," you generally get there after floundering long enough on the Green. Yet this seems very much like what has been done by most smoke and sewage pilgrims who have sought to reach the shrine of Sanitation. Little, if any, heed has been paid to the ways in which other sanitary reforms have been successfully achieved, and although we have often drawn attention to this fact, it is well worth while doing so once more, since we shall be able to point the old moral in the new words of, not a chemical manufacturer, but no less a personage than a professor of Public Health.

The lessons we would re-tell will both be drawn from Glasgow. The first refers to sewage treatment and the prevention of river pollution,—the latter in particular.

The pollution of Scotch rivers is obviously of greater importance than is the case with our rivers. Most Scotch rivers have yet to be polluted to the same extent as the Irwell and its tributaries.

In addressing himself to this subject, Dr. J. Glaister has wisely defined the lines on which they should seek to reform the existing Scotch law, which both history and experience have proved to be unworkable. The same instruments have shown much the same thing with our own laws when worked on certain lines.

After making clear the need for a compulsory Act, bearing with it penalties, the Professor goes on to point out two important departures which can be clearly foreseen, and instances well how they should be made. The first fact to which he draws attention is that, having obtained the amendment of the Act, it will sooner or later become necessary in all the river basins of Scotland to institute joint committees for river cleansing, and likewise the appointment of inspectors who shall be charged with the duty of supervising the methods of purifying effluents and preventing the entrance of new pollutants will become imperative. For this end the Doctor recommends Scotch sanitarians to copy the provisions of the Alkali Acts, which have done so much toward the purification of the atmosphere from chemical gases. In these Acts a standard of purity for chimney effluents was laid down, which, gradually increasing in strictness, has notwithstanding been well within the attainments of chemical manufacturers; besides, the efficiency of the Act is maintained by inspectors appointed by the Act, and, lastly, all works which are likely to contribute to the gaseous impurity of the atmosphere in terms of the Act must be registered. What then, asks the

Professor, should prevent a standard of purity, appointment of inspectors, and registration of polluting works, or towns, &c., being introduced into an Amending Act?

The only answer we can suggest is that such treatment is held to be too thorough and too expensive. The general idea seems to be that these two questions, which are said to be of such vital importance, can best be solved by a short course of mild tinkering, based very largely on the notions of our forefathers. Yet such reformers seem oblivious of the fact that in this way nearly enough money has been wasted in useless individual outlays, enforced by organisations fed from County Council coffers, to answer once and for all the question of expense.

Then what is the use of the Local Government Board preaching and enforcing the land doctrine, and this or that committee adopting the pity-the-poor-blind-policy of "no standards" because they do not know any? Those air-pollution reforms that have been done well have been made by men of fertile brain who knew what they were talking about, because they had increased their general knowledge by the special study of the problem and its difficulties. Inch by inch they progressed, until now they can point to results that the most zealous sanitarian would not have dared to advocate at the outset.

But what is more important still, how can the present organisations hope to administer the act successfully? Did a board of chemical manufacturers administer the Alkali Acts? And is it likely that we could show the progress of to-day if they had? What then can we expect from a body of administrators which is largely made up of persons directly deputed to advocate reform in all directions except at home, and to jealously screen the imperfections there by a cloak of excuses and disingenuous comparisons. It would be a tragedy were it not so intensely farcical.

The utter uselessness of the present procedure is shown by the circular which we print elsewhere in the *Journal*, and which at last invites all those who have for long seen the errors of our existing methods, to meet, discuss, and resolve how best they can be supplanted by sounder propaganda.

Perhaps the real reason why most authorities would be sorry to see the River Pollution Acts enforced from Whitehall, or possibly by a branch department of a reconstructed Local Government Board, is because in about six months half their stock loop holes would be choked up, while the effect of able, educated and more extended inspection upon those who indulge plentifully in slipshod treatment would be very much like that of dropping potassium on water. It not only makes a flash and an explosion, but also leaves a "caustic" solution.

Coming to the second lesson—viz., that on smoke—much that has just been said applies again. The centralization of forces and efficient executants could accomplish much good and save a lot of bickering. In Glasgow they have been deliberating on this question with great care.

It is, nevertheless, an open question whether it is of quite the same importance as river pollution or sewage disposal, which for the moment are taken as one, unless the smoke difficulty is to be treated in the manner described by Mr. Duff in his paper, which appears in this issue. His contentions are reasonable, and in certain ways rather rough on those who so freely maintain that by the emission of black smoke you scatter a small fortune with the "blacks." We rather think the small fortune is scattered in appearing before the "beaks."

The main point, however, is that whether Mr. limitation to carbon monoxide is accepted, or the aim carry out smoke prevention in the ordinary sense, the maxims still apply, and how their application is appraised in the North is shown by the proceedings of the Glasgow mittee, which, while deciding to collect information smoke preventing methods in other towns, held the opinion that *practical* inspectors should be appointed to and report on the works and chimneys. But where are to be found, and at what price?

THE PROBLEM OF SMOKE CONSUMPTION

OBJECTIONS OF STEAM USERS.

THERE was a large attendance of members at the meeting of the Manchester Association of Engineers on Saturday last, paper by Mr. Edward J. Duff, of Liverpool, on the "Efficient Management of Steam Boilers." Mr. T. Daniels took the chair, paper contained valuable data as to the economical use of fuel in boilers, whilst the causes which led to loss of efficiency, as also a bad condition of the exit gases and a high chimney loss, were reviewed. The solid matters deposited from the "feed water" also dealt with, and the remedies considered. Mr. Duff mentioned his experience of mechanical stoking led him to believe that, when there were a number of boilers near together, and where mechanical stoking was supplemented by coal elevating and conveying machinery, or where the coal could be discharged directly from waggons into overhead hoppers, there had been no saving of fuel. The expenses for repairs, depreciation, interest, &c., generally balanced any saving in labour or fuel. Mr. Duff severely criticised "smoke consumers" in use. Most of them, he said, should be smoke disguisers, for many admitted excess air in different ways, reduction of draught took place, due to reduction of vacuum in the boiler, and the passage of less air through the grates, which reduced the consumption of gas generation, while diluting the diminished quantity of gas. The effect was found in the reduction of the steaming power of the boiler, in a lowered temperature of the gases in the flues, and in the diluted chimney gases assuming a lighter colour. The smoke authorities would be satisfied, but the steam users had undoubtedly had to pay severely for this form of so-called smoke abatement. It had been demonstrated time after time that smoke might be free from carbonic oxide and contain only 1/4 to 1 per cent. of solid carbon. This solid carbon was really the main contention, but it did not "pollute" the atmosphere in a chemical sense, nor could it as a solid substance be called a "noxious fume" was, however, unsightly, and formed "smuts," to hide which the user was saddled with a loss of fuel heat varying from 10 to 20 per cent.—that was, he had to burn 10 to 20 per cent. more fuel than would do if allowed to emit concentrated smoke. This 10 to 20 per cent. more fuel burned emitted a like extra volume of "noxious fumes," therefore there was emitted into the atmosphere for a amount of steam raised 10 to 20 per cent. more smoke with the called consumers than without them. They might ask if the solid carbon had been prevented or consumed after all. The answer must be in the negative, for they had been hidden, but not abolished and could not be by the addition of air without extraneous heat. "Smuts" of solid carbon were formed by the hydrocarbon gas striking cooler plates of the boiler, depriving the carbon of the heat necessary for the complete combustion of the solid element. If they could get the gases from a boiler chimney, which to all appearance was emitting "black smoke," because of large dilution of air, they still had the smuts. After all, the question had to be faced—"What were smoke authorities and their prosecutions really effecting?" That were effecting any ultimate good the writer entertained grave doubts. Seeing they could not reduce the quantity of carbonic acid gas given by the burning of coal, and that it was not one whit more poisonous whether it was black or white, why did not the smoke inspectors do it alone, and give some attention to that preventable and poisonous "carbonic oxide," and prosecute where they found that presence of analysis of the gas at the chimney; for then some real good might be done both for the purification or sanitation of the atmosphere, and the steam users themselves, for a very small amount of carbonic gas passing the chimney could not only unnecessarily vitiate the atmosphere, but cause serious loss in undeveloped heat to the steam. Studying the question of "boiler furnaces" some years ago, he came to the conclusion that to really consume the solid carbon in the flue furnace must be constructed so as to maintain for a time the temperature of the flame, to give time for complete combustion, and obtain which it would be necessary to exclude secondary air.

The Patent List.

This list is compiled from Official sources in the Manchester Chemical Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Retting Apparatus. C. Gautier and X. Wehrle. 746. January 11.
 Manufacture of Soap. J. T. Potts. 751. January 11.
 Apparatus for Producing Ice by the Expansion of Compressed Air. B. Lightfoot. 852. January 12.
 Appliance for Ammonia, etc., Compressing Apparatus. T. B. Lightfoot. 853. January 12.
 Working Liquid Carbon-dioxide for Motive Power. C. Guattari. 881. January 12.
 Treating Apparatus. P. S. Hyslop. 914. January 13.
 Alloys. G. A. Webb and W. A. Thoms. 918. January 13.
 Powders, etc. F. Tiemann. 1,023. January 14.
 Apparatus for the Electro-deposition of Metals. J. E. Hartley. 1,026. January 14.
 Working Lead, etc., from Zinc Blend Ores. H. R. Angel. 1,034. January 14.
 Working Complex Sulphide Ores of Lead and Zinc. C. T. J. Vautin. 1,039. January 14.
 Working Oil from Cocoa and other Nuts. J. C. W. Stanley and T. B. C. Edman. 1,076. January 14.
 Batteries. W. Rowbotham. 1,099. January 15.
 Working Batteries. F. W. Jones. 1,154. January 15.
 Chemical Precipitant for Sewage. E. G. Annis. 1,170. January 16.
 Working Sewage. J. Pratt, W. Prest, and G. B. Waugh. 1,172. January 16.
 Working Bye-product Coke Ovens. H. Simon. 1,194. January 16.
 Working Apparatus in Oil Extraction and Apparatus therefor. E. Gengembre, Beaumont, E. Lestarquit, and P. Guilbert. 1,221. January 16.
 Working a Combustible Gas from Towns' Refuse and Sewage Sludge. L. Ross and A. J. Gibson. 1,240. January 16.
 Working Barium Carbonate from the Native Sulphate. H. H. Lake. 1,248. January 16.

EXTRACTS OF LATEST COMPLETE SPECIFICATIONS.

The abstracts are specially prepared for the Chemical Trade Journal, and the full rights of publication are reserved. This is the earliest of abstracts of Chemical and allied patents accessible to the public.

Apparatus for Detecting and Indicating the Presence of Fire-damp and other Noxious Gas or Gases in the Atmosphere of Mines and other places. E. L. Mayer, 11, Billiter-square, and G. Bush, Racechurch-street, London, E.C. Eng. Pat. 18,188. September 28, 1895.

Apparatus for detecting gas by means of a gas battery made to give charges of static electricity, which operate apparatus for giving visible or audible signals.

Apparatus for separate arrangements of the gas battery and signalling apparatus are described, and illustrated by 19 figures, in which various of galvanometers, such as Lord Kelvin's, and applications of the same are detailed.

A battery of, say, 60 elements will in the presence of 4 to 5 per cent. marsh gas have an E.M.F. of about 3 volts.

The apparatus can either be below ground or on the surface, the gas being conducted thither by pipes. The apparatus is applicable to the testing of coal bunkers on board ships if the meter arrangements are mounted compass fashion on gimbals.

Apparatus for the Rapid Tanning of Hides, Applicable also for Dyeing and otherwise Treating Leather. H. L. J. Roy, Rue de la Victoire, Paris. Eng. Pat. 2,572. February 4, 1896 (under International Convention July 4, 1895).

This is an arrangement of a tanning pit and machine for obviating the difficulty and often irregular handling of hides in the usual tanning process. The machine is also so constructed that electricity may be used to electrify the pit liquor if desired. The pit is cup-shaped. Over it is placed a horizontal, endless, travelling apron or belt, composed of a series of parallel hide-suspension rods, the extremities of which are provided with pitch chain links, and are provided with rollers running in guides. As the belt travels the hides are alternately steeped in the liquor and drained. As the temperature of the liquor affects the results, a pipe is provided, one end of which takes the liquor from the bottom and discharges it from the other at the top of the tank. The leg is jacketed, and so heated, the heating of the liquor maintaining the regular circulation. It is claimed that by this process ox or calf hides of average weight can be well tanned with extracts in forty hours, as against thirty to forty days by the old process. Various modifications of the belt or drum are described. There are four

Improvements in Apparatus for Use in the Extraction of Gold from Auriferous Material by the Aid of Chemical Solvents. J. Y. Johnson, 47, Lincoln's-inn Fields, London (communicated by J. J. Deeble, Rae-street, Bendigo, Victoria). Eng. Pat. 23,954. October 27, 1896.

The patent is virtually incomplete without the nine figures which accompany the specification. Briefly stated, the object set forth in the title is achieved by means of a rather shallow circular vat or pan, the inner side of which is provided with a series of projections, which cause eddies or swirls in the material being treated. The contents are mixed by an agitating device composed of the usual central arm-bearing shaft, the distinctive features being that, by means of special gearing, the motion of the agitators can be reversed, and the speed nicely regulated, as well as being able to raise and lower the arms as they rotate. The solvent is drawn off by a sliding valve, or by stepped holes and pegs, while a sludge valve is fitted in the bottom of the tank.

Improvements in Electrolytical Apparatus. R. Heathfield, 1, Leadenhall-street, London, E.C., and W. S. Rawson, 21, Greycoat-gardens, London, S.W. Eng. Pat. 25,002. December 31, 1895.

The apparatus is part of plant for the electro-deposition of zinc, and consists of a rotating depositing barrel. This is made partly of Portland cement, carried on an iron skeleton. To appreciate the improvements the original patent, 5537/94, should be consulted. There are four figures.

Improved Process for Treating Dry Materials (more particularly fibrous substances) with Liquid. A. Vogelsang, 547, Rosenstrasse, Dresden. Eng. Pat. 26,495. November 23, 1896.

The improvements aim at ensuring complete saturation. A vacuum is produced in an hermetically sealed vessel in which the dry materials have been placed, and the liquid is then run in as fast as possible and brought to a pressure of 50 or more atmospheres by aid of a high pressure pump. This pressure is permanent, that is to say, the liquid is not forced by a pump to circulate through the material, and so kept in circulation. By the high, steady pressure a thorough and even permeation is claimed. The one essential is that the materials be quite dry. When wet the process cannot be carried out, even with the vacuum and very high pressure, as the existing moisture produces a counter pressure, and an equal saturation of all parts is not attained. The process is specially applicable to dyeing and bleaching, cotton cops, twilled hanks, and such like, as well as fibrous materials in general.

THE TREATMENT OF SEWAGE.

STANDARDS AND LAND QUESTIONS.

EVEN the unobtrusive worm will turn, and it seems to have done so at last, judging by the following circular, which has been issued from the Town Hall, Salford, dated 20th January, 1897, by Francis H. Walmsley, Esq., as the Chairman of the River Irwell Conservancy Committee. "Sir,—I am desired by the River Irwell Conservancy Committee of this County Borough, to ask if your Authority will be willing to appoint a representative to attend a meeting on a day to be hereafter fixed, in this Town Hall. The purpose being to take into consideration the attitude of the Local Government Board, in regard to the compulsory purchase of land for sewage treatment; and also that of the Mersey and Irwell Joint Committee in reference to standards of purification." There should be a great assembly of one-minded individuals, and they should be able to achieve something good.

RAILWAY RATES FOR FERTILIZERS.—A conference was held recently at Welshpool between some of the directors and also the general manager, of the Cambrian Railway Company and the delegates of the county councils of Montgomery, Radnor, Brecon, Gardigan, Merioneth, and Carnarvon, and some others interested in the development of the agricultural resources of the district served by the Cambrian railways, to consider questions relating thereto. The conference, by resolution, expressed the opinion that if the cost of carriage of lime were reduced a larger quantity would be used by farmers in the district, and asked the company to take steps for reducing the rates on lime from both North and South Wales. A resolution was also passed to the effect that, bearing in mind the considerable reduction in the price of artificial manure and feeding stuffs, amounting to 30 or 40 per cent., the conference asked the Cambrian Railway Company to reduce their rates for the conveyance of those articles. The meeting devoted considerable time to the question of co-operation, and passed a resolution appointing a committee to consider the advisability of applying the principle of agricultural co-operation, especially in dairying, to the district of the Cambrian Railway.

MOTOR CAR NOTES.

IN the article which appeared in our recent Special Issue dealing with the doings of oil motor cars, there appear to have been one or two points, the spirit of which has not been quite rightly understood. The following are a few additional notes, which, by more fully explaining certain points, will remove any misconception as to the spirit in which they were written.

In speaking of the Motor Club run to Brighton, perhaps it was not made quite clear that the cars that took part in this trial trip were wholly intended for passenger traffic, and, one might almost add, designed for the service of pleasure.

Now, for recreation and enjoyment, we think the present cars are far too imperfect to become popular, and in this field the incidental pleasures entailed in the exercise of the arts of riding and driving will enable the faithful horse to long hold his supremacy amongst those who can afford to indulge their tastes.

It is, we think, in quite a different and more prosaic sphere that these motor cars will most speedily come into use. In short they will be the toy of the novelty-seeker and sensation lover, but a tool—a useful tool—in the hands of the utilitarian.

In a general way of speaking they will ere long deliver the horse from hack work and those arduous forms of labour which climate and bad food make pitiful and expensive, when executed by the equine race. Further than this, it is possible, without any extravagant flight of imagination, to foresee that the ship of the desert will also be superseded to a considerable extent by oil motors.

Regarding the isolation of electrical generating and charging stations, and the necessity for their frequency being considerably increased before the electric car can go very far afield, their multiplicity is not necessary because enough electricity cannot be stored for a reasonable run, but because it is so hard to calculate the exact amount of energy that may be required for a journey under the varying conditions of wind, weather, hills and sloughy roads. Inspired by these and certain other difficulties, we have already sketched in a half-humorous but pardonable strain the vicissitudes that are likely to be experienced by those who essay to travel outside a town with an electric motor carriage (*C. T. J.* 471, p. 350). We add the qualification of pardonable, because we think it will be admitted that such gentle satire is pardonable when our suppositions are contrasted with the stolid, uncompromisable fact that in the Brighton run of about 50 miles, none of the electric carriages that joined in the start attempted to make the complete journey, owing to the absence of re-charging facilities *en route*. This is not said with a view to depreciating the value and possibilities of electricity, and as no unkindly insinuations are intended we hope our words will not be misconstrued.

At this juncture reference to compressed air and gas may fittingly be made. They are both handy, but only rank a little in advance of electricity, if at all, as there is the weight of the storage cylinders, and also the expensive plant for compressing to be considered. They have their champions, but in the light of our recent article it is not necessary to do more than thus make passing mention of their possibilities.

The following remarks, made by Mr. W. W. Beaumont recently in a paper on "Mechanical Haulage on Common Roads," are interesting, and in many respects corroborate the conclusions we came to in our article.

For the lighter vehicles the Continental makers have, he said, already arrived at designs which must be accepted as meeting the requirements of those who are prepared to look upon the benefits derivable from the use of motor vehicles as sufficient to merit some care—to merit the bestowal on the motor and its gear of a part at least of the care and consideration which would otherwise have to be spent on a horse or horses. I am quite aware that these vehicles are almost all propelled by mineral spirit motors, and that there are valid objections to the use of this spirit because of the care necessary, the smell of the exhaust, the necessity for constant running, and the vibration when the vehicle is standing. The third and fourth of these objections will be gradually removed. The two first belong equally to a horse, and the first, namely, care, attaches to the possession of almost everything worth having. The amount of careful attention necessary, or of care imposed, will, however, be lessened by the use of motors in which petroleum oil is employed as fuel, and there is reason to believe that will ere long be found possible. Indeed, at least one kind of motor-carriage is at present running with ordinary lamp oil. This lessens care or apprehension of danger, but at present does not lessen trouble or smell, and the undisputed easiness which attends the vapourisation and combustion of mineral spirit, and the simplicity of the motor parts required for its use have to be given up as the price of the greater safety and greater economy. The price of a suitable mineral spirit or oil of easy vapourisation will no doubt decrease with the increased employment as the present high price is partly caused by regulations which have now been modified and the consequently small incentive to oilmen to keep it in stock. The use of heavy oil depends much on the achievement of a sympathetic action between the

oil feed and the amount of resistance which the engine in very varied work experiences. Even more than this must be attained, for it is necessary that the cutting off of the oil feed shall anticipate by a work stroke the cutting off of the work. When this is done, fuel exhaust an attendant of variable work will be avoided, and one of the great objections to the heavy oil removed. This has been nearly, if not quite achieved by the new Root's motor, in which the governing by exhaust also governs not only the draught of oil vapour into the cylinder but the supply of oil to the vapouriser. The objections to which I have referred obtain chiefly with reference to motors and oils or mineral spirits for passenger vehicles. They do not obtain with regard to vehicles for trading purposes, or at all events not to the same extent. It is as well to admit that there are objections, but it is equally or more important that we should not be guilty of causing delay in the development of a much required means of transit by indulging in that wisdom that shows itself in mere adverse criticism. The feeblest vitality rarely refuses to show its activity in this occupation, but when the sought is one which all men admit to be desirable, all men should be their encouragement, or at least refrain from the pitiable weakness of deprecating as incomplete a thing which is avowedly in course of development.

THE CARRIAGE OF ACIDS AT SEA.

THE recent casualty which befell a Liverpool steamer when carrying acids on deck has served to draw attention to this subject, especially when we recall to mind the great quantities of acids which are conveyed all the year round by ships in the coasting and foreign trade. The carriage of such cargo is a great convenience to persons in business. When accidents happen of an alarming character there is an ostensible danger against the stowage of such goods on deck. The acids are carried with comparative security, the percentage of disasters to the gross number of cases, drums, or carboys shipped being very small. A sensation, however, created when disagreeable reports are published. Not many months ago a steamer bound to a Spanish port fell in with heavy weather in the Bay of Biscay, and the waves struck the tier of carboys with such violence that the covering did not save some of them from smashing, and caused so much alarm that the master had the whole consignment thrown overboard. Under the Merchant Shipping Act it is provided that whenever the master of a ship has reason to fear that acids may endanger the lives of the crew, he is at liberty to have the dangerous articles cast into the sea. This proceeding is occasionally resorted to, but only as a last remedy. Acids are placed on the upper deck because of their volatile nature and disposition to explode. (Accepting *picric*, this is doubtful.—*Ed. C. T. J.*) In one instance oil vitriol was received for shipment and deemed perfectly harmless, whereas, had it been labelled "Sulphuric Acid," the agent would have stated, have declined to accept the same. Chemical science has added sundry new names to combinations of sulphur and oxygen, and all explosive substances or compounds come within the statute, which insists upon comprehensive labelling by way of warning to carriers.

Reverting for the moment to the case to which we refer in our opening remarks, it appears that the contents of the drums exploded rapidly, succession, setting fire to deck fittings, and almost suffocating the crew. By brave and seamanlike exertions the ship and all hands were saved from destruction. The drums were marked "carbonated acid." This was not a sufficient description of the strength for such acid. Iron drums would be thought beyond the danger of explosion, but as they broke adrift the receptacles may have broken. This question is susceptible in involving shipowners in liabilities, as we learn from a recent French judgment. The steamship *Armente*, on leaving Marseilles for Novorossisk, had 160 carboys of sulphuric acid stowed on deck. A big wave dashed on board and broke the carboys. The noxious liquid descended into the saloon and cabins, and two passengers died and others were hurt. An injured passenger brought an action at the Tribunal of Commerce at Marseilles, and the court held that the owners of the steamer could not be made liable for the fury of the elements. The Aix Court of Appeal reversed that decision on the ground that the acids were contained in ten gallon glass carboys, separated by esparto grass matting, and ropes round, but with no further protection; and the shipowner should have known that his vessel was liable to cope with winds and waves. This opens an interesting point as to breakage. The court said that cases should have been employed to pack the carboys, and straw or sawdust used. We can understand the shipowner being made liable for the result of deck cargoes of a nature fetching away in heavy weather owing to defective lashings causes over which the ship has a direct responsibility, but it is held that he should be mulcted in damages because of improper packing of the goods carried. At the same time shipowners have the option of refusing merchandise on which claims may be made through the nature of the materials or packing. These cases serve a purpose in directing attention and securing the exercise of greater care in the carriage of dangerous acids.—*Liverpool Journal of Commerce.*

GOLD OUTPUT IN THE RAND.

Output from the Rand district during December, 1896, as cabled by the Witwatersrand Chamber of Mines, amounts to 168,922 oz. total, however, is exclusive of the returns of several companies under the title of the "Association of Mines of the South Republic," give their joint output as 37,595 oz. The month's total is, therefore, 206,517 oz., and shows an increase of 5,404 oz. compared with the previous total, and an increase of 28,089 oz. as compared with the corresponding month of 1895. The result for the twelve months is, therefore, 2,281,874 oz., a gain of 4,239 oz. on the total for the year ended December, 1895. The following gives the monthly returns since the beginning of 1892, from which it can be seen that, despite all the troubles and disturbances of 1896, there has been a record one:—

	1892.	1893.	1894.	1895.	1896.
	OZ.	OZ.	OZ.	OZ.	OZ.
January	84,560	108,374	149,814	177,463	148,178
February	86,649	93,252	151,870	169,295	167,018
March	93,244	111,474	165,372	184,945	173,953
April	95,562	112,053	168,745	186,323	176,707
May	99,436	116,911	169,773	194,580	195,008
June	103,252	122,907	168,162	200,941	193,640
July	101,280	126,169	167,953	199,453	203,873
August	102,322	136,069	171,977	203,573	213,418
September	107,852	129,585	176,707	194,764	202,561
October	112,167	136,682	173,378	192,652	199,889
November	106,795	138,640	175,304	195,218	201,113
December	117,749	146,357	182,104	178,428	206,517
Total ..	1,210,868	1,478,473	2,024,159	2,277,635	2,281,874

TECHNICAL EDUCATION IN GERMANY.

PHILIP MAGNUS, Mr. G. R. Redgrave, Mr. Swire Smith, and Mr. W. Woodall, M.P., have addressed to the Duke of Devonshire, as Lord President of the Council, a report of considerable value on a visit they have made to Germany with a view of ascertaining the recent progress of technical education in that country. The report, with a long introductory letter, has been issued as a Blue Book. The signatories were members of the Royal Commission on Technical Instruction, and they set themselves in their recent investigation to compare the existing condition of things with that which obtained 14 years ago.

Industries which have practically been created since 1882 are cited as typical examples of the progress achieved. In 1882 there was a single Portland cement factory in Bavaria, but now at one of the works alone 300 hands are employed, and about 50,000 tons of cement are produced annually. The business was founded only in 1885. Electrical works of Messrs. Schuckert and Co. (now the Elektrizitäts-Gesellschaft) were only just beginning on a small scale in 1882, and now they employ 3,500 workpeople and export optical and electrical machinery to all parts of the world.

In the report states, in fact, our recent visit has brought it home to us that the Germans have not ceased to believe in the

HIGHER SCIENTIFIC EDUCATION.

On the contrary, they appear now to attach greater importance than ever to the connection between such higher scientific training and the development of manufacturing industry. No nation not overburdened with capital would continue to erect and equip institutions for advanced technical and scientific research without a firm conviction of their value. The demand, too, for such higher teaching seems to be increasing as the facilities for providing it are enlarged. For, whereas, in 1882 it was stated that the total attendance at the Polytechnicums was little more than 2,000, the attendance of students at Charlottenburg alone, a part of the Berlin University, is now 3,000, while the number of students in the physical and electro-technical laboratories at Darmstadt, already in excess of the accommodation, and the buildings, were only completed in October, 1895, are now undergoing renovation.

The brilliant achievements in the field of chemical industries have led her to establish well-equipped electrical laboratories and to develop the practical teaching of physics, with the view of assisting the electrical trades, which are comparatively of recent growth.

THEN AND NOW.

Years ago the Commissioners had to report that the facilities for laboratory instruction in electrical technology scarcely existed, and of the most meagre kind. At that time nowhere in Germany was found so well-equipped a laboratory for electrical engineers as the Inspruck Technical College. Now there are no laboratories in

England which can compare in the detail and completeness of their equipment with those we visited at Darmstadt and Stuttgart; and no facilities exist for original and independent research in physical subjects to be compared with those afforded at the Imperial Physical Institute at Charlottenburg.

SOCIETY OF CHEMICAL INDUSTRY.

SCOTTISH SECTION.

THE third meeting of the current session was held on Tuesday, Jan. 26th, in the Chemistry Lecture Hall of the Technical College, 204, George-street, Glasgow. The chairman of the section, Dr. John Clark, being absent owing to indisposition, Professor G. G. Henderson directed the proceedings. The minutes of the Edinburgh December meeting having been read, approved and signed, the chairman called upon Mr. Charles J. Ellis, F.I.C., to communicate, as promised, his paper entitled "Notes on Residual Cyanide Solutions, and a method of Examining Them." Although modestly designed "notes," Mr. Ellis's paper proved to be a very homogeneous production, of a length which is rarely exceeded by any others brought before the section, and at the same time full of experimental data from beginning to end. The author read his paper with a clear voice, and a complete and even admirable distinctness of articulation, but at such break-neck rate of speed, that the note-takers present were put *hors de combat* from the start, and made to see that any attempt at useful note-taking would be altogether futile. To make matters worse from the listeners point of view, the Lecture Hall seems ill adapted, structurally, for the diffusion of rapid utterances, and expressions heard and there reached the ear confusedly only. This was of less consequence, perhaps, because the meeting, though a small one, was evidently composed largely of experts in the special subject dealt with, and these no doubt were able to follow the lecturer in spite of the drawbacks arising from an unusual speed of reading and the indifferent acoustics of the building. At the beginning Mr. Ellis admitted that much of what he was going to say had already been put before the Society in papers previously read by him, but something would be new. He wished to bring down these cyanide researches to date, and to give a view of what had been accomplished in the past. This was a subject, he said, upon which only the most meagre information was to be found in chemical text books. He went back ten or more years when the recovery, by chemical means, of gold and silver from the tailings of auriferous strata came to be practically attempted. From this period downwards he detailed the progress made by experimentalists, and particularly the progress achieved by himself personally, and the other chemical gentlemen associated with him. The paper bristles with solid data, which will be more interesting to specialists in this direction when supplied to members through the pages of the Society's Journal, but of which it would have been impossible to give here any adequate outline, even if the paper had been more leisurely read and better heard. At the close Mr. Ellis frankly confessed that present results were far from definite, but he hoped that a ventilation of this particular field of chemical investigation might induce an additional number of experimenters to enter it, and that ultimately the ends sought might be attained. The paper occupied an hour in the reading, and the listeners were phenomenally attentive throughout. Thanks to the reader were awarded with more than usual warmth.

AMENDMENT OF THE FOOD AND DRUGS ACT.—At the last meeting of the Manchester Chamber of Commerce the minutes of the Produce Sectional Committee, whose proceedings were approved, contained a resolution to the effect that an interview should be sought with Mr. Balfour by a deputation of the Committee for the purpose of urging upon him the great importance of introducing, during the present session of Parliament, a bill amending the Food and Drugs Act, prepared on the lines of the report of the Select Committee of the House of Commons of last session.

THE BORACIC ACID QUESTION.—The Birmingham Health Committee have decided to proceed with the taking of samples of milk, and testing them for the purpose of ascertaining whether they contain boracic acid. With regard to butter and provisions generally, it was resolved to communicate with the Local Government Board, and to ask them to investigate the whole question for the purpose of advising local authorities whether the presence of boracic acids in foods is injurious to health. If the Local Government Board come to the conclusion that a small admixture is not injurious, then they will be asked to issue some regulation defining the quantities, and providing that those quantities shall be marked on the article sold. The action taken by Birmingham in the matter (which was recently noticed editorially in this Journal) will be of beneficial interest, not only locally, but throughout the country.

Parliamentary Jottings.

DAINGEROUS TRADES.

In the House of Commons on Monday, Mr. McKenna asked the Home Secretary whether, in view of the fact that seven trades were reported on in the interim report by the Committee appointed to inquire into the dangerous trades, and that the Committee stated that these seven were selected as greatly in need of definite regulation, special rules had been issued for any of these trades; and, if so, for how many?

Sir M. White Ridley said that out of the seven processes named in the report, he had already seen his way to certify two as dangerous under the Act of 1891. Special rules, embodying most of the recommendations of the Committee, had been issued for one of those—the bottling of aerated waters,—and would shortly be issued for the other—the vulcanising of india-rubber by means of bi-sulphide of carbon. With regard to the remaining five, a similar course would probably be necessary in the case of some, if not all, but there were legal and administrative considerations which made it difficult to give full and adequate effect in the form of special rules to the suggestions of the Committee. For the present, therefore, he must reserve his decision on that point, but in the meantime steps were being taken by the factory inspectors to watch those processes, and to secure the improvement of the conditions under which work was carried on.

RIVER POLLUTION BILL.

Sir F. Powell's Bill to make more effectual provision for the prevention of the pollution of rivers and streams, was read in the House of Commons for the first time on Tuesday.

UNITED STATES MINERAL PRODUCTION IN 1896.

THE following summary of the statistics of the past year has been compiled by the *Engineering and Mining Journal*, of New York, who deserve highly complimenting on the unparalleled celerity with which they have collected their returns.

The production of minerals and metals in the United States for the year 1896 is given at a total value of \$653,311,468, showing a decrease, as compared with 1895, of \$24,689,266, or about 3½ per cent. This decrease was largely in values rather than in quantities; in none of the chief articles was there any marked decrease, while in several there were considerable increases.

The total production of metals in the year 1896, was valued at \$242,311,481, an increase of \$1,694,111 over the previous year; while the value of non-metallic substances was \$410,999,987, a decrease of \$26,383,377 from 1895. A large part of this was due to the lower values of coal, stone, and a few other important substances, very little resulting from the smaller quantities.

Aluminium.—The production of this metal shows an increase of 400,000 pounds over that of 1895, the total for the year being 1,300,000 pounds. The production continues in the hands of a single company, the Pittsburg Reduction Company.

Lead.—The production of lead from domestic ores in 1896 amounted to 175,717 short tons, showing an increase of 20,863 tons over the preceding year. In addition to this there were 79,000 tons produced from imported ores, or refined from imported bullion.

Platinum.—The production of platinum, obtained chiefly by parting from gold at the San Francisco Assay Office, shows no material change.

Quicksilver.—The output for 1896 was 33,012 flasks (of 76½ pounds each), showing a decrease of 966 flasks from the previous year. The production continues to come wholly from the California mines, no new deposits having been developed to the producing point during the year.

Abrasives.—The production of these materials, including corundum, garnet, tripoli, and infusorial earth, and in addition, millstones and whetstones, shows but little change. *Carborundum* is making its way in various quarters, and the manufacturers of this artificial abrasive are arranging for a large increase in the production.

Alum.—The production remains about stationary, any tendency to increase being checked by the absence of demand among the manufacturers who mainly consume this product.

Asbestos and Talc.—There was a slight increase in the production of asbestos; that of fibrous talc remained about the same, no new producers having come into the market. The same thing may be said of the lower grade of talc, and of soapstone.

Barytes.—A slight decrease is reported in this product, which is of comparatively slight commercial importance.

Bauxite.—The production of bauxite, which came entirely from the Georgia mines, is referred to more fully elsewhere. The greater part of this mineral continues to be used in the manufacture of aluminium.

The Pittsburg Reduction Company now controls some of the pyritic bauxite beds, and is preparing to work them on a larger scale.

Borax.—The output, most of which now comes from the mines of Southern California, shows a gain. It is still in the hands of the producer, the Pacific Coast Borax Company, which in 1896 consigned with the Redwood Chemical Works of Great Britain. The consignment company practically controls the borax output of the world.

Bromine.—An increase of 156,000 pounds, or nearly 40% is reported in this product, the total amount still being somewhat limited.

Cement.—The cement producers reported in 1896 a decrease of 966,000 barrels, or about 13%, in the production of natural hydraulic cement. This was nearly made up, however, by an increase of 1,000,000 barrels in Portland cement. This would indicate a production of the same quantity as in 1895, but an increased demand for the latter for Portland cement.

Clays.—The clay industry generally remains almost stationary, with no appreciable decrease, but an absence of the gain which has been expected.

Cobalt Oxide.—Producers report about the same output as in 1895.

Copperas.—The production shows a slight decrease, as was expected; the difference amounted to about 3,000 short tons. **Chrome Ore.**—The output which comes entirely from the California mines was only about one-fourth of that reported in 1895. Our supplies of chrome ore for Eastern manufactures continue to come from abroad.

Feldspar.—This mineral shows a decrease in production of 2%, as compared with 1895. The production fluctuates from year to year, usually, the demand not differing greatly.

Graphite.—An increase of 58,000 tons is reported in this mineral, further gain may be expected in 1897 from the very promising recently opened in Rhode Island.

Gypsum.—A decrease of about 50,000 short tons is shown in the output of gypsum. This was chiefly in the gypsum used for agricultural purposes, although there was also a falling off in that made into plaster.

Iron Ore.—The production was about the same as in 1895, a slight increase in the output of pig iron was somewhat less; the stocks remaining on hand at the close of the year were much larger.

Magnesite.—But little change is shown in the output of this mineral, which continues to come almost entirely from the California mines. Most of the product is also used on the Pacific coast.

Manganese Ore.—The production from the Georgia mines was small; there was a decrease in the Virginia mines also and the output in the United States was only about half the amount of 1895; this was partly due to a decreased demand from the steel trade, but to the continued large imports of foreign ores from Russia, Cuba, and Central America, which can be delivered by water at Eastern ports.

Mica.—The production of mica remains about the same, a slight increase being shown in that marketed as ground mica, and a slight decrease in the sheet mica.

Mineral Wool.—An increase is reported in this product, for new markets are being opened.

Monazite.—There was but little change in the supply, which continues to come from the North Carolina placer washings.

Natural Gas.—The value of the gas produced and sold shows a decrease, principally due to the exhaustion of wells in the Pennsylvania and Indiana gas belts. New sources of supply are being discovered, however, which may replace the exhausted wells.

Mineral Paints.—A gain of about 60 per cent. is shown in the output, chiefly the iron oxide paints.

Phosphates and Marls.—A heavy decrease in the production of phosphate rock is shown, due to the closing down of many of the Carolina and Florida producers on account of low prices.

Salt.—The production of salt remained nearly unchanged. The demand, of course, but slight alteration in the demand for domestic use product absorbed in the chemical industry is gradually increasing.

Soda.—The output of soda is growing with the extension of the chemical industry, which is steadily going on in this country. The production of natural soda from Wyoming remains small owing to the difficulty of gaining access to the deposits.

Sulphur.—The production of sulphur in the United States is limited one in spite of the opportunity offered by the recent prices and the demands of the Sicilian sulphur trust. Arrangements are being made to develop some of the Texas deposits, however, it is hoped will be successful within a short time.

THE CHEMICAL SOCIETY RESEARCH FUND.—At the last meeting of the Chemical Society, it was announced that Mr. J. J. Tuohy made a donation of 1,000 guineas to the research fund of the Society.

PLATINUM DISCOVERIES.—According to *l'Echo des Mines*, small veins carrying platinum have recently been found in the rocks in Hungary. Platinum has also been found in veins of iron ore existing in altered or decomposed syenites near Santa Rosa in Colombia.

Correspondence.

THE FLASHPOINT OF BURNING OILS.

(To the Editor of the Chemical Trade Journal.)

I have followed with some interest your frequent references to point of petroleum, and I have often wondered what it can be npts some who have doubtless great experience to give their and active support to the fallacy that oil of low flashpoint is a le for public consumption.

It is that this oil has gained a footing by false pretences, and, w in use to such a vast extent, there is and will continue to be faculty in making headway with any proposals for reform while rts are so divided in their opinions.

Of those who speak with such authority have doubtless satisfied es by experimental proof that under certain conditions such oil ed without much risk by those who understand its nature. Inquests, however, have made us only too familiar with the the public do not understand the nature of low flashpoint oil; if the public were educated from their youth upwards in the ge of such things, there would still be accidents, for carelessness ets not only the ignorant, but also those who know at times.

Supposing even that there was no such thing as carelessness, s none too safe, as the following personal experience of my nly shows. One night I sat reading in a room which was y a duplex lamp, supplied with ordinary American oil, the being of strong glass cemented into the socket of a metal The lamp had been burning perhaps two hours, and was about rters full of oil, when suddenly, without the slightest visible ere was an explosion of such violence as to throw the oil of its socket. It fell first on the table, and then rolled on to i. Not being either pecuniarily or scientifically concerned in ion of flashpoint, I did not wait to see what would happen instantly spread the table cover over the fallen lamp, personal ng my first consideration.

ot know whether the explosion had put out the flame, or it was extinguished by falling, or, lastly, whether it was ed by the tablecloth being applied. At any rate, the glass was not broken, and beyond the loss of the chimneys no mage was done, which was fortunate, perhaps, for me, as the ly a yard away.—Yours, etc., JAS. KAY HILL.

Home-place, Copland-road, Govan, Glasgow,
January 23rd, 1897.

Selected Correspondence.

THE VALIDITY OF PATENTS.

(To the Editor of the Manchester Guardian.)

he need for issuing none but valid patents is essential—first, the public from fraudulent repatenting, by which they get windled at present; secondly, to protect shareholders in based on patents from having them dragged into court and id matter from the 1,321,336 outside patents not included in ent libraries; thirdly, because without validity and a long free tents of poor scientific men and working men, who form three-inventors generally, can never raise money on their patents to yoked out and advertised into public use here as in America. already 141,318 floating derelicts, or sunken inventions, ck of floating patents to endanger their safety, and these are gh to steer clear of without more being added. The recent dges has been useful, and will to a certain extent protect rs in companies based on patents, but the mass of poor men's not possibly come into public use until only valid patents with a long free run given them.

he circumstances it would be exceedingly useful if Parliament m, "That in the opinion of this House the issue of letters inventions ought to be deemed conclusive evidence of utility y." Will Sir John Leng or some other M.P. take it in he strength of the fact that on the 20th April last year "Lord y advocated the examination of new patents for novelty," tional reason is needed, the fact that there is a fresh stir among yers to get a patent court established may supply it? In y they say "one of the features of recent cause lists has been ecrease of patent cases. There are enough in the present uppy the whole attention of a judge. It contains eighteen sting to pneumatic tyres alone." Now, none of these cases occupied the time of a judge at all, if only valid patents had l in the first instance. Five years ago Lord Esher told us aste of time over patent cases means. "It used to be said was something catching in a horse case; that it made the

witnesses perjure themselves as a matter of course. It seems to me that there is something catching in a patent case . . . which makes everybody argue and ask questions to an interminable extent. A patent case with no more difficult question to try than any other case, instead of lasting six hours, is made to last six days, if not twelve . . . Now, what is the result of all this? Why, that a man had better live his patent infringed, or have anything happen to him in this world, short of losing all his family by influenza, than a dispute about a patent. His patent is swallowed up and he is ruined." How will it be, then, if there is a patent court established, "to facilitate the trial of patent cases" while the present issue of invalid patents continues?—Yours, &c.,
January 23, 1897. ALPHA.

AN INTERESTING SUGAR PROSECUTION.

AT the North London Police Court, last week, Mr. Bros continued the hearing of the summonses taken out under the Adulteration of Food and Drugs Act at the instance of the Islington Vestry against twelve small shopkeepers for selling, to the prejudice of the purchaser, yellow beet crystals when Demerara sugar was asked for. Mr. Bramall again appeared in support of the summonses, and Mr. A. J. Ford defended. Mr. F. W. Beck, solicitor, watched the case on behalf of the Metropolitan Grocers' and Provision Dealers' Association. Mr. Arthur Gibbons, of the firm of Gibbons and White grocers, of Highbury-place, said that he had been in the trade twelve years, and, although he only dealt in cane sugars, he had had some experience of beet crystals. There was a difference of price to the extent of 6d. per cwt. between the two articles, the Demerara sugar being the dearer. In addressing the magistrate for the defence, Mr. Ford said he was ready to admit that Demerara was asked for, and that beet crystals were supplied; but, in spite of all that had been said by gentlemen who were looked upon as experts in the sugar trade, he was going to contend, and support his contention by the highest scientific evidence obtainable, that beet sugar was of the same nature, substance, and quality as cane sugar, and if he proved that to the satisfaction of the magistrate he should ask that all the summonses be dismissed. He should prove that Mr. Quintin Hogg's "rule of thumb" test as to the description of sugar by putting it into a glass of water was a fallacy, and that the cloudiness of the water, which Mr. Hogg said indicated that the sugar was genuine Demerara, was due to dirt. Further, he should show that the clearness of the water, which Mr. Hogg said showed the beet origin, was due simply to absolute purity. As to the assertion that beet sugar was useless in the manufacture of jam, he should prove that ninety-nine jam manufacturers out of every hundred preferred to use beet sugar because of its absolute purity. Mr. Otto Hehner, of Billiter-square, E.C., public analyst for Nottinghamshire, past president of the Society of Analysts, etc., said there was absolutely no chemical difference between pure cane and pure beet sugar, and if they were both absolutely pure an analyst could not tell the difference. Both became white in refining. The beet crystals were coloured with a harmless dye, and the cane sugar was brought back to its natural colour by the use of chloride of tin. At one time Demerara was very impure, and a complaint known as the "grocers' itch" was believed to be due to the mites brought over in Demerara sugar. Refining had done away with this, but Demerara sugar was not refined to the extent that beet sugar was. The cloudiness in the water in Mr. Hogg's test was thus accounted for. The further hearing was adjourned.

NEW LAKE BASES.—We may call the attention of lake colour makers to the new coal tar dye, Patent Blue L, which has been brought out by the Farbwerke vorm. Meister, Lucius and Bruning especially for making lake pigments of a bright blue with a slight greenish tinge. It precipitates with barium chloride.

WOOD PULP *via* THE CANAL.—The following steamers have recently discharged paper-making material, &c., in the Ship Canal:—Welhaven, 3,005 bales of wood pulp from Gothenburg; Torbay, 3,878 bales of wood pulp from Christiania, also 3,384 bales of wood pulp from Porsgrund; Ibis, seven bales of paper-making material from Ghent, 24 bales of paper-making material and 845 bags of bark from Antwerp; Geir, 2,268 bales of wood pulp, 55 bales of pulp boards from Gothenburg; Ptarmigan, 475 packages of wood pulp and 15 bundles of willows from Rotterdam; Fulmar, 30 bales of paper-making material from Ghent, 24 bales of paper-making material, 299 bags of bark from Antwerp; Iolantha, 340 bales of pulp boards from Copenhagen; Twilight, 180 bales of wood pulp from Norrköping and 3,400 bales of wood pulp from Kallero; Courier, 4,328 bales of wood pulp from Sarpsborg; Gard, 4,555 bales of wood pulp from Kragen; Margaritha, 12,355 bales of wood pulp from Drontheim; Genova, 2,461 bales of wood pulp, 6,913 bales of wood pulp from Drammen; Erato, 802 bales of wood pulp from Gothenburg; Starlight, 2,442 bales of wood pulp; and Rallus, 500 packages of wood pulp, 305 packages of pulp boards.

251106A

Trade Notes.

THE PETROLEUM COMMITTEE.—The members of the Petroleum Committee which sat last Session have been officially notified that a motion reconstituting the inquiry will be submitted on an early day. The committee finished taking scientific evidence before the prorogation; but a considerable number of witnesses have still to be examined in regard to the construction of lamps, the commercial aspects of the case (which involve both the oil and the lamp trade), and the vital question of storage. It is fully expected that the testimony on these points will occupy the whole of the Session.

THAT SAFE PETROLEUM AGAIN.—The London steamer *L'Oriflamme*, an iron screw steamer of 2,129 tons net register, and carrying petroleum in bulk from Philadelphia, has gone ashore near the entrance to the port of Rouen in a bad position. It subsequently caught fire and after burning three days is still burning, and constitutes a serious danger to navigation. Captains of vessels have been warned that they can only pass at their own risk and peril. Around the burning vessel there is a zone extending 100 metres in all directions in which it is impossible to undertake that explosions will not from time to time occur. The steamer was built in 1892, and was owned by the Petroleum Shipping Co., London.

AMERICAN ENTERPRISE IN PERU.—*El Comercio*, Lima, gives particulars of a powerful company which has been formed in the United States, with a capital of £20,000,000, to construct railroads in Peru, as well as to work coal mines or other minerals, guano, nitrate, petroleum, &c.; to construct wharves, elevators, launches, telegraphs, &c. The first line of railroad will be that from the rich coalfields of Hualgayoc, where a large area of land, rich in coal, has been obtained, to the port of Cherppe, with branch lines to Chota and Cajamurea. The company has already been incorporated and sanctioned by Congress, and the railroad has been surveyed by a North American railroad engineer.

LORD MASHAM ON TECHNICAL EDUCATION.—Speaking this week at the meeting of Lister and Co., Ltd., Lord Masham said technical education had cost him more than half a million of money. What did our greatest industrial authorities say with regard to technical education? Lord Armstrong said he did not believe in it; neither did he (Lord Masham)—in a certain way. He did not believe in educating many thousands and spending millions of pounds upon it. What they wanted to do was to find the true ore, and then let the technical colleges, like that of Bradford, select the men who were to become our great chemists and engineers—take a few fit boys and give them the highest education that England or the world could provide, sparing no money and no energy in turning out these men. But it was no use taking a lot of blockheads and educating them. If there was no gold in the ore, all the skill in the world would not suffice to extract gold; but if they found out first where the gold was, then they could not spend too much money upon extracting it. There was no limit to the amount that he would spend upon the education of those who were fit for it. He saw that in the future those who educated their men of ability to the highest point would be the people who would command the trade of the world.

INSTITUTE OF CHEMISTRY EXAMINATIONS.—The following are the names of candidates who passed the practical examination for the associateship:—(Under regulations in force prior to October 1st, 1893)—Walter Harry Barlow, Finsbury Technical College; Charles Beavis, Ph.D. (Würzburg), (for fellowship), Universities of Bonn and Würzburg, and with Dr. Quirin Wirtz, F.I.C.; Cecil Joslin Brooks, King's College, London; Ernest Mostyn Hawkins, Finsbury Technical College, London; Charles J. S. Makin, Royal College of Science, London, and the Fresenius Laboratory, Wiesbaden; William Moore, Laboratories of the Pharmaceutical Society, University College, London, and with Professor John Attfield, F.R.S., F.I.C.; Sigmund Salomong Rosenblum (for fellowship), University of Warsaw, Fresenius Laboratory, Wiesbaden, and with Dr. Samuel Rideal, F.I.C. Intermediate Examination:—(New regulations)—Reginald Arthur Berry, Cambridge University; John Alfred Foster, under the late Dr. Norman Tate, F.I.C., Professor V. B. Lewis, F.I.C.; Robert Dexter Littlefield, University College, London, and also with Dr. John Muter, F.I.C., and Mr. W. A. H. Naylor, F.I.C. Final Examination for the Associateship.—In Branch A. (Mineral Analysis)—Frank Collingridge, B.Sc. (Lond.), University College, London (passed "Intermediate," July, 1896); William Ranson Cooper, M.A., B.Sc. (R.U.I.), Royal University of Ireland, and King's College, London; John Allsopp Walker, B.A. (Oxon), Oxford University. In Branch E. (Analysis of Water, Food, and Drugs)—Raymond St. George Ross (for fellowship), Owens College, Manchester, and Dresden Polytechnic. Examiners:—Professor Percy F. Frankland, F.R.S., F.I.C., and Otto Hehner, Esq., F.I.C.

SOCIALISM IN THEORY AND PRACTICE.—The glassworks Carmaux, France, have recently been given an illustration unexpected turn which may be taken by a favourite theory. So eminent has always been strong among this class of workers, but have been shown that the plan may work both ways. It appears in consequence of a dispute between the employes and their rival glass works was started in Albi, a neighbouring town, supplied by Socialist capital, but principally as a response to Socialist by benevolent persons who were under the impression that they doing a great act of justice and carrying on a philanthropic work. These works appear to be supported, as they were commenced by voluntary subscriptions. But now the Carmaux workmen find new works a formidable rival. They complain that their trade is injured by competition, and the worst of their trouble is that they instituted their own competitor. This is one result of Socialism that they never counted upon.

AN EIGHT HOURS DAY A FAILURE.—Among the Bills introduced to the Belgian Parliament this Session is one for an eight day for workmen. Wishing to put the matter to the test, a manufacturer has made the experiment. In proposing eight hours to his workmen he said, "I expect that neither you nor I will lose and that in working three hours a day less you will work to produce as much as you are producing now. Will you try it?" At once asked what would be their position if they should produce less. The employer replied, "Do not be afraid. I will make the difference good out of my own pocket." The fifteen days had expired the manufacturer was only too glad to end to the experiment. In explaining the result to the men he said that the loss represented one hour and a half per day per man. With regard to his fifty employes who are paid by the week the outcome was even more disastrous. For the first two or three days they worked with a will. Then they fell back into the old habit of their employers lost on each of the fifty, three hours per day the whole 150 hours per day and 900 per week.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways of foreign subscriptions are remitted, we respectfully beg to subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the *Crossed Money Order*, a letter advising us of same should always accompany the order, otherwise, owing to post-office formalities, much delay in transmitting acknowledging foreign remittances is inevitably entailed in this method.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are steady, having practically remained the same week—90's are quoted 3s. 6d. and 50/90's 3s., prompt. So favourably affecting the forward values. Carbolic acids are firm—unaltered at last week's quotations. Naphthas are firm—crude at 1s. 1d., while solvent is rather dearer at 1s. 8d. As anthracene, creosote, and grease oils, there is practically no change. Pitch is weak, at about 23s. 9d. to 24s., f.o.b. East Coast.

Sulphate of ammonia is not in a very encouraging position better tone that prevailed during the last fortnight has not been maintained, prices having fallen away to a certain extent. values are:—London outside makes £8., Liverpool, Hull, at £7. 17s. 6d., and possibly lower at Leith for prompt. The business is scarcely thought of, buyers' notions being all too low.

MISCELLANEOUS CHEMICAL MARKETS.

In the alkali trade values remain steady all round. Ex alkali continue to be much under the average of former years, and is no outlook for improvement in face of continued output. 58% alkali is still quoted f.o.r. makers' works at £3. 7s. 6d., but for export considerably lower prices are taken. Soda crystals and bicarbonate are unaltered in quotation. Caustic soda is also much variation in price, and demand is fairly good at current prices. —F.o.b. Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 72%, 2s. 6d.; 60%, £6. 2s. 6d. per ton, nett, 10-ton lots. Bleaching is in rather better inquiry, and price for best brands remains £6. 10s., f.o.r., and £6. 15s., hardwoods, f.o.b., per ton. Forward sales, however, are reported at rather lower rates. C are without quotable change, but with slightly weaker tendency. 4¼d. for potash and 5¼d. per lb. for soda. For recovered sulphate market is firm and price unchanged, at £4. 12s. 6d. to £4. 15s. Sulphate of copper has still further advanced to £19. 15s., f.o.

demand thereat, for early spring delivery. Saltcake quiet, at 4s. f.o.r. There is a good demand for ordinary acids, vitriol, etc. For potash, caustic and carbonate, there is a fair and prices are firm both for early and forward delivery. Brown lime still with an upward tendency, at £4. 17s. 6d. to £5. 5s. per ton. Acetate of soda, £14. to £14. 5s. c.i.f. unchanged, but with a firmer tendency. Other acetates For borax and boracic acid the market is weak, and prices remain at £20. and £28. 10s. respectively. Superphosphates request, but without improvement in value. Yellow prussiate is firmer, at 5½d. per lb. Prussiate of soda, 4½d. per lb. powdered arsenic in strong demand, at £23. 15s. to £24. per cwt. March delivery. In general chemicals trade is reported on all points.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil is very quiet. Prices remain much the same, but no business to report. The prospect of a rise in the price of oil has been more or less realized, there having been a good business in spot at full prices. Linseed is as dull as ditch-water, the price very quiet even at the reduced price, which now stands at 6d. per cwt, for Liverpool makes in export casks. Cottonseed oil is easier in price, with only a quiet market thereat. Liverpool quoted 15s. 6d. to 16s. 3d. per cwt. according to quality. It is very steady on spot, with a moderate business doing. Good Calcutta figure at 3d. per lb. First pressure French 2½d. per lb. Madras 3¼d. per lb. Tallow is steady with a rather quiet market. South American is reported as having been done at 19s. 3d. (mutton). Resin is quiet, and there is only a moderate inquiry at 5s. 3d. to 7s. 6d. per cwt. according to quality. Spirits of turpentine are the turn easier again, there being a fairly good business at 21s. per cwt., spot. Petroleum, quiet, but so far there has been no change in price. American, 6½d. to 7¼d., and Russian 7½d. per gallon.

—URS.—Prices are steady, and practically without change. Oxfordshire, common, £10., medium, £12., best, £15., per ton; Welsh, common, 40s.; medium, 50s.; best, 60s.; Welsh, best, 60s., and common, 18s.; Irish, Devonshire, 40s., to 45s.; J.C., 65s. Umber: 40s. to 45s. White lead, £16. 10s. unchanged. Venetian red, £6. to £10. Cobalt: Prussian blue, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

REPORT ON MANURE MATERIAL.

Business during the week has only been on a moderate scale, weather having rather a deterring influence. Further business done in high grade Florida rock at an advance upon 6½d. per ton and i. to the Baltic, summer shipment. There would be no business in this grade at 6d. per unit, c.i.f. to U.K., but buyers, being fully covered, do not manifest any interest. Quotations for Algerian and for South Carolina River rock remain 5½d. per unit, that for 63/70% Algerian 5½d. per unit, in cargoes, c.i.f. to U.K. ports. Bone material is rather neglected, and there are no orders of Bombay bone meal, 4½ and 52%, at £3. 16s. 3d. per unit. This price would be accepted to arrive. There has been no other considerable business in cargoes of nitrate of soda at a discount on recent prices, and the spot market is also slightly depressed, quotation being 8s. 1½d. for good, to 8s. 3d. for fine quality.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 41s. Middlesbrough 41s. 1½d. cash, and hematite 41s. 1½d. quiet: Chili bars, G. O. B's and G. M. B's, closed at 41s. 10s. to £51. 15s. cash, and £51. 15s. to £52. 10s. Tin, steady: Straits closed at £62. 12s. 6d. to £63. 6d. cash, and £63. 5s. to £63. 15s. three months; Straits, £64. 2s. 6d.; English ingots, £66. 10s. to £67. Lead: English, £11. 17s. 6d.; English, £12. to £12. 2s. 6d. Silesian spelter, £17. 13s. 9d. to £17. 17s. 6d. Nickel, 1s. 2½d. Antimony, 1s. 6d. First hands, £6. 17s. 6d.; second hands, £6. 10s. Copper shares, steady: Cape, 2½d. to 2½d.; Copiapo, 2½d.; Libiola, 2½d. to 2½d.; Mason and Barry, 2½d. to 2½d.; Tharsis, 6½d. to 6½d.

GLASGOW, WEDNESDAY.—Market firm, with a fair business. Donegal at 48s. 1d. cash, and 48s. 2½d. to 48s. 3½d. per ton; buyers, 48s. 1d. cash; sellers, 48s. 1½d. Cleveland

done at 40s. 11½d. to 41s. 1½d. cash, and 41s. 3d. one month; buyers, 41s. 1½d. cash; sellers, 41s. 2d. Cumberland hematite done at 50s. 10½d. and 50s. 11d.; buyers, 51s. cash; sellers, 51s. 1d. hematite done at 50s. cash; buyers, 50s. 0½d. cash; sellers, 50s. 1½d.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The market remains in an inert condition for the most part, particularly in regard to immediate business. There is a fair current of enquiry after forward terms, however, though the business actually decided on is as yet unimportant in amount. The exceptions in this general state of lassitude are the old ones, viz., sulphate of copper, which is dearer, and sulphur, which is called for and at present quotes £5. Sulphate of ammonia has been losing slowly all the week, under an enfeebled enquiry, and to-day spot price is about £7 17s. 6d. only, with a certainty of being offered at lower than that if the present very wintry aspect of weather lasts any time. There is still no movement as regards forward supplies. Owing to the increased inclemency of the season, the calls for burning oil and naphtha upon the paraffin manufacturers have increased slightly, rather than diminished, though the usual time for a waning demand is now upon us. Lubricating oils remain satisfactorily steady, and the solid paraffin weak.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/52°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 12s. 6d. nett, Tyne; saltcake, 20s.; borax, English, refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash, 4½d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 4½d.; sulphate of ammonia, £7. 18s. 9d. to £8. 2s. 6d. prompt, f.o.b. Leith; sal ammoniac, first and second white, £35. and £33. nett, any port; sulphate of copper, £18. 15s., to £19. less 5%, Liverpool; paraffin scale, hard, 1½d. to 1¾d., and soft, 1½d. to 1¾d. per lb.; paraffin wax, 120° semi-refined, 1½d. to 2½d. per lb.; paraffin spirit (naphtha), 7½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 6,200 bags beet unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals show no alteration, and with threatened trouble with workmen and continued depression, the prospect is anything but bright. Soda crystals are £2. 2s. 6d. per ton, gross weight, locally. Caustic, 76/77%, £9. per ton; 70%, £7. 10s. per ton. Sulphur £5. per ton.

Bleaching powder, softs, £6. 15s. per ton, nett; hards, £7. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is 9s. to 9s. 6d. per ton, f.o.b. Tees.

COALS.—The market generally is steady, though shipments during the past week have been falling off, owing to delays in arrival of steamers on account of the stormy weather. Prices to-day as under:—Best Northumbrian steam, 7s. 9d. to 8s. 3d. per ton; do., forward, 8s. 6d. to 9s. per ton; second qualities, 7s. to 8s. per ton; small steam, 3s. 3d. to 3s. 6d. per ton. Gas coals firm at 7s. 3d. to 8s. per ton. Bunker coals, 6s. 9d. to 7s. 3d. per ton. Household coals, 10s. to 11s. per ton. Coke, 15s. 6d. to 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY

OILS.—Employment in the seed crushing mills has been fairly good and the prospect is better, so long as the present inclement weather continues and farmers have to depend upon artificial sources for their feeding stuffs—yet it does not of a necessity follow that oils will follow suit, for they naturally will be in larger supply. Linseed oil is quiet at 14s 3d. spot naked, 14s. 9d. February-April, 15s. 3d. accepted for May-August. Boiled and refined £1 to £1 10s. per ton extra. Refined Cotton oil, 12s. 4½d. spot naked; February-April, 13s. 6d.; casks, £1 1, and ordinary barrels £1 10s. per ton extra; the market continues weak. Turpentine, 21s. 6d. per cwt.; Olive oil quoted higher, but the demand warrants no advance in prices. Cod oil, from £16. to £18. per ton. Italian olive oil soaps, 60% fatty acids, £17 per ton c.i.f. Belgian oleines pale distilled, £17. 15s.; saponified, £18. 15s.; white distilled, £20. per ton. Castor oil, first pressure, up to 3d. per lb. asked. Yorkshire brown grease, £8. to £9 per ton. All mineral lubricating oils are quoted at advanced rates, which merchants have to pay out their profits, for no more can be made by the distributor. Finest Danish butter is quoted 120s. to 124s. per cwt.; Dutch, 112s. to 116s.; Colonial, 108s. to 112s.; Canadian, 102s. to 109s.

CAKES.—New orders have been scarce, but deliveries continue good on the previous sales. Linseed cakes are firm, 95% pure, £6. 12s. 6d. to £6. 15s.; oilcakes, £5. 12s. 6d.; Americans, £6.; Russians, £6. 7s. 6d. Cotton cakes, very steady, best makes, £4. to £4. 2s. 6d.; seconds, £3. 17s. 6d. to £4. Rape cakes, scarce. Black Sea, £3. 5s. to £3 7s. 6d.

PAINTS.—Manufacturers continue well employed, especially manufacturers with established reputations, who secure the best prices, which are largely variable accordingly. White lead, foreign manufactured, 16s., English, 16s. 9d. Mineral colours, dry, of which large quantities are exported from here, £3. to £8.; other prices unchanged.

New Companies.

Christmas Island Phosphate Co., Ltd.—CAPITAL, £15,000., in £10. shares. This company has been formed to acquire certain phosphate mines and mills at Christmas Island, and to carry on the business of phosphate miners and millers, chemical manure and fertilizer manufacturers. The subscribers to the memorandum of association are:—J. Murray, L.L.D., 32, Palmerston-place, Edinburgh; J. S. Smithson, Billiter-street, London, E.C., chemical manufacturer; H. Stubbings, 1, Whittington-avenue, London, E.C., secretary; J. Blair, W.S., 28, Charlotte-square, Edinburgh; W. T. Holland, 10, Billiter-street, London, E.C., solicitor; G. C. Ross, Keeling Cocos Islands, merchant; W. T. Lee, 1, Whittington-avenue, London, E.C., accountant.

Bowman and Co., Ltd.—CAPITAL, £20,000., in share each. This company has been formed to manufacture and chemicals and chemical substances. The subscribers to the memorandum of association are:—R. Bowman, 10, Osborne-road, Blackpool; T. Maddison, Durham, solicitor; G. G. R. Viewfield, Shotley Bridge, agent; C. J. Crawford, 75, Osby Newcastle, merchant; J. O. Wardale, 3, Watkin-terrace, G. engineer; R. A. Turnbull, 6, Jesmond-terrace, Newcastle; Mrs. A. Maddison, South Bailey, Durham.

Compressed Gas Co., Ltd.—CAPITAL, £25,000., in £5. This company has been formed to manufacture and sell carbide and to trade as manufacturing chemists. The subscribers memorandum of association are:—W. R. Hoare, 16, St. Lu Bayswater, chemist; J. T. Perrett, 35, Windsor-road, Willesd engineer; R. Leighton, 3, Minet-avenue, Harlesden, B. T. L. Thomson, 85, North-side, Clapham Common, engi Trinder, 47, Cornhill, London, E.C., solicitor; W. H. Wood South street, Isleworth, accountant; E. Cairns, 26, Ham Peckham, clerk.

Daisy, Ltd.—CAPITAL, £10,000., in shares of £5. ea company has been formed to manufacture and deal in s alkalies, and chemical products. The subscribers to the me of association are:—J. Wormald, 13, Infirmary-street, Leeds, W. H. Hall, 41, Montague-road, Handsworth, traveller; J Stansfield House, Armley, manufacturing chemist; T. Pe Tong-road, New Wortley, Leeds, gentleman; W. Dillon, place, Armley, Leeds, traveller; P. W. Lee, Stonebridge Farnley, near Leeds, dyer; W. C. Atkinson, 18, Park-ro chartered accountant.

Welsh Explosives Co., Ltd.—CAPITAL, £20,000., in £5 each. This company has been formed to carry on the manufacturing explosives at Anglesey. The subscribers memorandum of association are:—W. J. Fieldhouse, Ham Handsworth, ironfounder; R. M. Winn, Mus. Doc, Birmingham; F. A. Brown, Yew Dale, Harborne, Birming merchant; A. S. Tomkins, 61, Mark-Jane, London, E.C., m D. Paisley, 44, Davenant-road, London, N., engineer; J. Fu 14, Evelyn-gardens, London, S.W.; G. N. Abernethy, 4, street, London, S.W., C.E.

H. D. Pochin and Co., Ltd.—CAPITAL, £51,000., in £10. each. This company has been formed to acquire the H. D. Pochin and Co., Ltd., and to trade as manufacturing drysalts, and china clay manufacturers. The subscribers memorandum of association are:—Mrs. L. E. McLaren, 45, B gardens, London, S.W.; E. D. Pochin, Quay-street, Salfo facturing chemist; W. Pochin, Quay-street, Salford, mat chemist; Mrs. S. F. Pochin, Lynwood, Higher Cramp chester; Mrs. C. Pochin, 192, Upper Chorlton-road, Manch Pochin, Narborough, near Leicester, engineer; J. Pochin, 5 Croft, near Leicester, gentleman.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		
Week ending January 16th.		
Acetate of Lime—		
U. States, 1,375 bgs.	H. Wallace & Co.	
Acetic Acid—		
Holland, 92 pks.	A. & M. Zimmermann	
100	R. W. Greeff & Co.	
Acetone—		
Holland, 10 drs.	T. H. Lee	
1 ck.	G. Rahn & Co.	
Albumen—		
N. Russia, 690	Schenker & Co.	
Alkali—		
Germany, 40 c	J. Barber & Co.	
Alum—		
Holland, 70 pks.	Ohlenschlager Bros.	
Antimony Ore—		
Sydney, 15 t.	Pratt & Sons	
E. Indies, 114 t.	H. Gray, jun.	
Barytes—		
Belgium, 50 bgs.	J. L. Lyon & Co.	
Germany, 10 cks.	Steinhoff, Sons & Co.	
Holland, 24	Burrell & Co.	
Belgium, 33	W. Harrison & Co.	
Germany, 6	G. S. N. Co.	
Bleaching Powder—		
Belgium, 57 cks.	H. Wallace & Co.	

Camphor—		
Japan, 65 tubs	City Coml. Whf., Ld.	
Germany, 69	Lewis & Peat	
50 cs. 1 ck.	L. & I. D. Jt. Co.	
Caoutchouc—		
Zanzibar, 12 c.	Clarke & Smith	
14	S. Figgis & Co.	
Madagascar, 15	Procter Bros.	
Belgium, 4	Hale & Son	
1	Société John Cockerill	
France, 22	Girard Bros.	
Zanzibar, 12	L. & I. D. Jt. Co.	
Rangoon, 12	Prop. Hay's Wf.	
U. States, 100	F. V. Smythe & Co.	
Castor Oil—		
France, 40 brls.	Anderson, Weber & Smith	
Belgium, 30	Beresford & Co.	
France, 12 cs.	W. Droege & Co.	
Belgium, 114	W. Mills	
Caustic Potash—		
France, 20 drs.	W. E. Cole	
1	J. A. Reid	
20	Petri Bros.	
Chemicals (otherwise undescribed)		
Belgium, 679	Société John Cockerill	
Denmark, 40	Tegner, Price & Co.	
Holland, 23	T. H. Lee	

Germany, 377	L. & I. D. Jt. Co.	
185	H. Lambert	
44	T. Palmer	
35	Drolenvaux & Bremner	
20	F. Claydon & Co.	
14	Craven & Co.	
5	A. & M. Zimmermann	
270	F. Parker	
U. States, 1,127		
Citrate of Lime—		
Italy, 99 cks.	B. Jacob & Sons	
Cream of Tartar—		
France, 6 cks.	C. Atkins & Nisbet	
10	F. C. Devon & Co.	
Italy, 7	Thames S. T. & L. Co., Ld.	
France, 10	B. & F. Wf. Co.	
5	M. Ashby, Ld.	
5	W. C. Bacon & Co.	
5	Ross & Deering	
Dextrine—		
Germany, 106 bgs.	H. Lorenz	
50	J. Barber & Co.	
Dyestuffs—		
Annatto		
Denmark, 6 cs.	Sorensen & Co.	
U. States, 1 brl.	Hoare, Wilson & Co.	
Argols		
Spain, 599 bgs.	B. Jacob & Sons	

Cape, 14	J. R. Th	
Cochineal		
Canaries, 7 bgs		
Cutch		
Rangoon, 1,220 bxs.	A. E. V	
100		
800	A. He	
250		
1,200		
332	H.	
Singapore, 200 cs.		
Rangoon, 250 bxs.	J.	
Extracts		
Germany, 200 bgs.	H.	
France, 150 cks.	L.	
1		
45	B. S	
100	F.	
Belgium, 25		
U. States, 50 bxs.	W. Ha	
Indigo		
E. Indies, 6 cks.		
2	Mars	
7	Ces	
254	A. B	
6	Arbuth	
4	L.	
8		

Java, 1	L. & I. D. Jt. Co.
Holland, 1	C. S. Lovell
Belgium, 3 cs.	Société John Cockerill
E. Indies, 24	H. W. Jewsbury & Co.
" 120	L. & I. D. Jt. Co.
" 44	Ross & Deering
" 39	Williams, Torrey & Co.
Myrabolams	
E. Indies 1,400 bgs.	A. B. Curtis & Co.
Orchella	
Portugal, 51 bgs.	N. Smith
Tanners' Bark	
Belgium, 26 t.	Leach & Co.
San Francisco, 10	Elkan & Co.
Natal, 14	A. & W. Nesbitt
Farina	
Belgium, 50 bgs.	T. H. Lee
Glucose	
U. States, 250 pks. 250 c.	Pearce, Pelly, & Co.
" 125 550	L. Norman & Co. Ltd.
" 498 492	Bellamy & Co.
Germany, 40 372	M. D. Co.
France, 400 400	L. Norman & Co. Ltd.
" 200 200	Barrett, Tagant, & Co.
U. States, 500 500	G. Clark & Sons
" 775 885	Ohlenschlager
" 300 1,200	E. & T. Pink
" 50 285	J. Keiller & Son
" 800 700	Robinson, Son, & Co.
" 50 300	Page, Son, & East
" 150 89	Fellows, Morton, & Co.
" 500 250	National S. S. Co.
" 1,949 10,803	R. G. Hall & Co.
Glue	
France, 492	J. Harrison
Belgium, 404	J. Barber & Co.
U. States, 48	Armour & Co.
Holland, 110	Hernu, Peron, & Co.
France, 92	E. Fischel & Co.
Germany, 98	L. & I. D. Jt. Co.
U. States, 25	L. P. D. Co.
Germany, 19	T. H. Lee
France, 16	Bennett S. S. Co.
Holland, 16	G. Rahn & Co.
France, 57	Burnett Bros. & Sons
Lamp Black	
U. States, 200 cs.	L. & I. D. Jt. Co.
Sweden, 98	M. D. Co.
U. States, 896 brls.	Binney & Smith
Manure	
E. Indies, 250 t.	L. & I. D. Jt. Co.
France, 315	Francis & Co.
Belgium, 50	Chemical Works
Holland, 230	T. H. Lee
France, 185	R. W. Gould & Co.
Methyl Alcohol	
France, 20 dms.	F. V. Tucker
Melbourne, 40 pks.	H. Lorenz
Mica	
E. Indies, 4530	E. Davis & Co.
" 688	Ross & Deering
" 1,785	W. M. Smith & Sons
U. States, 100	W. Davis
Molasses	
Columbo, 83 cks. 1,100 c.	R. M. S. P. Co.
U. States, 40 200	A. B. Curtis & Co.
" 600 3,450	R. G. Hall & Co.
" 500 3,100	W. Balchin
Ochre	
France, 296 cks.	W. Harrison & Co.
Holland, 9 pks.	Phillips & Graves
Orange Lead	
Germany, 5 cks.	Burrell & Co.
Pitch	
B.W.I., 622 brls.	Gillespie Bros. & Co.
France, 37	Poti, Hille, & Co.
W.I., 251 pks.	Scholefield, Goodman, & Son
" 622	Newcomb Ltrge. Co.
B.W.I., 251	Scholefield, Goodman, & Co.

Plumbago	
Germany, 201 cs.	Beck & Pollitzer
" 6 cks.	T. H. Lee
Ceylon, 37	B. Galloway
405	J. Thredder, Son, & Co.
Germany, 371	Williams, Torrey, & Co.
3	Fellows, Morton, & Co.
Potash	
Belgium, 5 brls.	Société John Cockerill
Potassium Bicarbonate	
Holland, 19 cks.	A. & M. Zimmermann
Potassium Carbonate	
France, 22 c.	W. E. Cole
" 220	J. A. Reid
Germany, 110	R. W. Greff & Co.
Belgium, 100	Petri Bros.
France, 115	"
Potassium Chloride	
Holland, 12 cks.	H. Johnson & Sons
Germany, 195 bgs.	Bessler, Waechter, & Co.
Potassium Sulphate	
Germany, 305 bgs.	Bessler, Waechter, & Co.
Belgium, 50	Charles & Fox
Rosin	
France, 54 brls.	W. Harrison & Co.
Saltpetre	
Germany, 33 cks.	L. & I. D. Jt. Co.
Soda	
Belgium, 104 c.	C. Windschuegl
Holland, 2,700	R. Waters
Belgium, 110	F. Claydon & Co.
" 1,200	R. Waters
Sodium Sulphate	
Holland, 10 dms.	Deering & Robottom
Starch	
Belgium, 40 cs.	J. Harrison
Germany, 20	Phillips & Graves
" 400	C. Tennant, Sons, & Co.
U. States, 6 brls.	Pickford & Co.
France, 5	Beck & Pollitzer
Belgium, 310 cs.	T. H. Lee
U. States, 120	F. Claydon & Co.
Holland, 58	Taylor Bros.
Holland, 65	Phillips & Graves
Belgium, 90	Leach & Co.
U. States, 240 bgs.	Ohlenschlager Bros.
" 100	S. E. Railway
Holland, 1,351	Little & Johnston
Stearine	
Holland, 15 cks.	H. Hill & Sons
France, 150 bgs.	Bennett S. S. Co.
Holland, 15 cks.	J. Owen
Belgium, 125 bgs.	H. Hill & Sons
U. States, 50 cks.	Wilson & Farness Co.
Talc	
France, 440	Blackwell & Co.
Tartaric Acid	
Holland, 26 pks.	B. & F. W. Co.
" 10	Kirkpatrick & Co.
Ultramarine	
Germany, 20 cs.	Steinhoff, Sons, & Co.
Belgium, 4 brls.	W. Harrison & Co.
Holland, 12 cks.	Phillips & Graves
20	Hernu, Peron, & Co.
Varnish	
U. States, 10 pks.	W. Davis
Germany, 32	Schenker & Co.
U. States, 6	Dawson Bros.
White Lead	
Germany, 56 cks.	Randall Bros.
" 40	Taylor Bros.
" 26	D. Storer & Sons
Holland, 56	T. & W. Farniloe
Wood Pulp	
Sweden, 342 bls.	J. Owen
" 800	Hummel & Co.
Holland, 72 pks.	Henderson, Craig, & Co.
" 700	E. J. & W. Goldsmith
Sweden, 400	Tough & Henderson
290	Henderson, Craig, & Co.
Norway, 646	W. G. Taylor & Co.
Germany, 400	H. Lambert
117	Thames S. T. & L. Co.
Norway, 240	Mortimore Cox Bros. & Co.
" 164	Becker & Co.
" 30	Henderson, Craig, & Co.
Sweden, 7	Surry Com. Dk. Co.
Germany, 400	W. Friedlaender
Holland, 101	Thames S. T. & L. Co.

Zinc Oxide	
Holland, 200 brls.	M. Ashby, Ltd.
Germany, 60 cks.	R. W. Greff & Co.
France, 40	M. Ashby, Ltd.
Germany, 83	Burrell & Co.
" 200	Soundy & Sons
" 76	M. Ashby, Ltd.

LIVERPOOL.

Week ending January 14th.

Alumina Hydrate	
Antwerp, 6 cks.	J. T. Fletcher & Co.
Barytes	
Rotterdam, 9 cks.	
Antwerp, 34	
Bone Ash	
B. Ayres, 209 bgs.	H. Brown
Borax	
Valparaiso, 1,200 bgs.	
Castor Oil	
Calcutta, 1,020 chts.	Ralli Bros.
" 1,200 cs.	
Chemicals (otherwise undescribed)	
Rotterdam, 5 cs.	
Chrome Ore	
Smyrna, 210 t.	
Cobalt Ore	
Rouen, 6 cs.	R. J. Francis & Co.
Colours	
Rotterdam, 5 tubs	
Antwerp, 1 ck.	
Cottonseed Oil	
New York, 120 brls.	
Cream of Tartar	
Tarragona, 5 cks.	
Dried Blood	
B. Ayres, 585 bgs.	W. B. Dickinson
Dyestuffs	
Argols, 4 cks.	
Bordeaux, 4 cks.	
Gutch	
Rangoon, 200 bxs.	
Valonia	
Smyrna, 25 1/4 t. 302 bgs.	Barry Bros.
" 100	C. G. Nicolaides
" 50 1/4	G. Essayan & Co.
" 105 1/4 1,774	
Farina	
Fiume, 120 bls.	
Havre, 4,800 sks.	
Glucose	
New York, 450 brls.	T. M. Duche & Sons
" 200	
Ghent, 3,000 bgs.	
Glue	
Rotterdam, 4 cs. 120 bgs.	
Marseilles, 3	
Rouen, 6 cks.	R. J. Francis & Co.
Hydrochloric Acid	
Paris, 4 cs.	Seine & Mersey S. S. Co., Ltd.
Iodine	
Valparaiso, 25 brls.	A. Gibbs & Sons
Lamp Black	
Philadelphia, 280 bgs.	
Limestone	
Antwerp, 9 cs.	J. T. Fletcher & Co.
" 1	1 crt.
Linseed Oil	
New York, 7 brls.	W. Johnston & Co.
Manganese Ore	
Cartagena, 800 t.	
Huelva, 1,120	Darwen & Mostyn Iron Co.
Poti, 2,750	"
Nitric Acid	
Paris, 7 cs.	Seine & Mersey S. S. Co., Ltd.
Ochre	
Marseilles, 20 cks.	
Cartagena, 39 brls.	
Paraffin Scale	
New York, 336 brls.	Thompson & Bedford
" 1,098	Anglo-Am Oil Co., Ltd.
Philadelphia, 23	
Baltimore, 200	
Phosphate Rock	
Port Royal, S.C., 1,894 t.	
Potash	
Dunkirk, 18 cks.	
Pyrites	
Huelva, 1,675 t.	
" 2,990	Matheson & Co.
Rosin	
Baltimore, 800 brls.	
Salt	
Baltimore, 4 tcs.	
Saltpetre	
Karachi, 120 bgs.	
Calcutta, 514	
Soap	
Marseilles, 4 cs.	
Jaffa, 1	
Antwerp, 20 cks.	
Soapstone	
Gerona, 250 bgs.	W. Harrison
100	
Starch	
Rotterdam, 40 cs.	
Newport News, 800 bgs.	
New York, 500	T. M. Duche & Sons
" 2,289	525 sks.
Antwerp, 120	
Stearine	
Antwerp, 126 bgs.	J. T. Fletcher & Co.
" 38	
Tallow	
B. Ayres, 556 hf.-pps.	
New York, 100 lds.	
Boston, 100 brls.	
Tar	
New York, 75 brls.	
Tartar	
Bordeaux, 1 cs. 15 cks.	
Valparaiso, 8 sks.	Murich & Droste
Tartaric Acid	
Antwerp, 10 cks.	
Treacle	
Boston, 500 brls.	
Varnish	
New York, 12 brls.	W. A. Warren
Wood Pulp	
Gothenburg, 782 bls.	G. F. Green & Co.
" 70	F. Doherty
Zinc Oxide	
New York, 220 brls.	
Antwerp, 130	908 plts.

MANCHESTER.

Week ending January 16th.

Acetic Acid	
Antwerp, 40 blns.	
Gothenburg, 3	
Barium Sulphate	
Hamburg, 2 cks.	
Barytes	
Antwerp, 50 bgs.	
Rotterdam, 20 cks.	200
Chemicals (otherwise undescribed)	
Hamburg, 4 cks. 1 cs.	
Rotterdam, 1	
Colours	
Hamburg, 9 cks. 10 cs.	
Paris, 4	
Rotterdam, 9 brls. 9	3 bxs.
Ghent, 2	3 pks.
Dyestuffs	
Alizarine	
Rotterdam, 12 cks.	21 brls.
Gutch	
Paris, 25 cks.	
Indigo	
Rotterdam, 2 chts.	
Farina	
Hamburg, 40 bgs.	
Stettin, 450	
Glucose	
Stettin, 1,000 bgs.	
Glue	
Hamburg, 60 bgs.	
Rotterdam, 130	6 cs.
Antwerp, 8 cks.	4 pks.

Iron Sulphate —		
Hamburg,	1 ck.	
Lead Acetate —		
Hamburg,	24 cks.	
Limestone —		
Antwerp,	8 crts. 4 cs.	
	1 J. T. Fletcher & Co.	
Litharge —		
Rotterdam,	15 cks.	
Potassium Chloride —		
Hamburg,	19 dms.	
Potassium Permanganate —		
Hamburg,	2 cks.	
Pyrites —		
Huelva,	3,097 t.	
Sodium Prussiate —		
Rotterdam,	25 cks.	
Starch —		
Hamburg,	20 cks.	160 cs.
Antwerp,		342
Stearine —		
Rotterdam,	18 bls.	
Tar Salts —		
Hamburg,	2 cks.	
Tartar —		
Bordeaux,	22 cks.	R. Hunter, Craig, & Co.
Ultramarine —		
Rotterdam,	2 cks. 20 cs.	
Waste Salt —		
Hamburg,	204 bgs.	
Wood Pulp —		
Rotterdam,	475 pks.	
Norskoping,	180 bls.	Stott, Coker, & Co.
Kallero,	3,400	
Kragen,	4,555	
Drontheim,	12,355	
Zinc Ashes —		
Stettin,	7 cks.	
Zinc Oxide —		
Hamburg,	10 cks.	
Rotterdam,	50 bls.	
Antwerp,	20 cks.	
Zinc White —		
Rotterdam,	5 cks.	

HULL.

Week ending January 16th.

Antimony —		
Hamburg,	5 cs.	Wilson, Sons, & Co., Ld.
Barytes —		
Rotterdam,	22 cks.	Hutchinson & Son
Amsterdam,	92	W. & C. L. Ringrose
Bremen,	61	
Bone Meal —		
Bombay,	3,750 bgs.	
Camphor —		
Hamburg,	10 cks.	Wilson, Sons, & Co., Ld.
Chemicals (otherwise undescribed)		
Hamburg,	5 cks.	Bailey & Leatham
Christiania,	1 cs.	Wilson, Sons, & Co., Ld.
Dunkirk,	26 pks.	
Bremen,	1 ck.	Veltmann & Co.
Hamburg,	54 pks.	Wilson, Sons, & Co., Ld.
Cod Oil —		
Bergen,	22 bls.	Wilson, Sons, & Co., Ld.
Hamburg,	2	"
Colours —		
Antwerp,	2 cks.	Bailey & Leatham
Danzig,	1 cs.	Wilson, Sons, & Co., Ld.
Rotterdam,	2 cks.	W. & C. L. Ringrose
Antwerp,	3 cs. 160 pks.	Wilson, Sons, & Co., Ld.
Riga,	64 cks.	"
Dyestuffs —		
Alizarine		
Rotterdam,	13 cks.	W. & C. L. Ringrose
Myrabolams		
Bombay,	7,888 bgs.	
Valonia		
Smyrna,	7,680 c.	

Farina —		
Stettin,	498 bgs.	Wilson, Sons, & Co., Ld.
Glue —		
Hamburg,	50	White & Son
Antwerp,	5 cks.	Bailey & Leatham
Bergen,	2 bls.	Wilson, Sons, & Co., Ld.
Christiania,	1 cs.	"
Danzig,	10 bkts.	"
Dunkirk,	26 pks.	"
Gypsum —		
Christiania,	3 cs.	Wilson, Sons, & Co., Ld.
Limestone —		
Antwerp,	1 crt.	Bailey & Leatham
Litharge —		
Rotterdam,	7 cks.	Hutchinson & Son
Mineral White —		
Hamburg,	20 cks.	Wilson, Sons, & Co., Ld.
Paint —		
New York,	51 cs.	Wilson, Sons, & Co., Ld.
Pitch —		
Antwerp,	11 cks.	Wilson, Sons, & Co., Ld.
Quicksilver —		
Hamburg,	5 bls.	Wilson, Sons, & Co., Ld.
Saltpetre —		
Hamburg,	10 kgs.	Wilson, Sons, & Co., Ld.
	10	
Starch —		
Rotterdam,	40 cs.	Hutchinson & Son
Bremen,	1,323	Veltmann & Co.
Antwerp,	80	Wilson, Sons, & Co., Ld.
Stearine —		
Antwerp,	28 bgs.	Wilson, Sons, & Co., Ld.
Tartaric Acid —		
Rotterdam,	2 cks.	W. & C. L. Ringrose
Treacle —		
New York,	640 bls.	Wilson, Sons, & Co., Ld.
Turpentine —		
Liban,	51 bls.	
Ultramarine —		
Rotterdam,	2 cks.	Hutchinson & Son
Yarnish —		
New York,	30 pks.	Wilson, Sons, & Co., Ld.
"	6 bls.	Pinchin, Johnson, & Co.
"	10	Blundell, Spence, & Co.
Waste Salt —		
Hamburg,	50 bgs.	Wilson, Sons, & Co., Ld.
White Lead —		
Antwerp,	22 cks.	Bailey & Leatham
Rotterdam,	102	Hutchinson & Son
Amsterdam,	24	"
Wood Pulp —		
Hamburg,	52 bls.	Wilson, Sons, & Co., Ld.
Rotterdam,	5 pks.	Hutchinson & Son
Gothenburg,	160 bls.	Wilson, Sons, & Co., Ld.
Christiania,	1,749	"
Christiansand,	60	"
Hango,	3	J. Good & Sons
Zinc Ashes —		
Antwerp,	11 cks.	Bailey & Leatham
Zinc Oxide —		
Rotterdam,	4 cks.	Hutchinson & Son

GLASGOW.

Week ending January 21st.

Acetate of Lime —		
New York,	252 bgs.	
Aniline —		
Rotterdam,	1 ck.	J. Rankine & Son

Arachide Oil —		
Rotterdam,	4 cks.	J. Rankine & Son
Barytes —		
Rotterdam,	60 cks.	J. Rankine & Son
Bone Meal —		
Calcutta,	3,360 bgs.	
Colours —		
Rotterdam,	124 cks.	J. Rankine & Son
"	24 cs.	"
Cottonseed Oil —		
Newport News,	120 bls.	Wm. Houston
Dyestuffs —		
Alizarine		
Rotterdam,	60 cks.	J. Rankine & Son
Shumac		
Palermo,	250 bgs.	C. Tennant
Glucose —		
New York,	350 bls.	
Glue —		
Rouen,	57 cks. 14 bls. 55 cs.	
Rotterdam,	20 bgs.	J. Rankine & Son
Nantes,	20	
Iron Oxide —		
Trieste,	25 cks.	Ferguson & Reid
Manganese —		
New York,	24 cks.	
Manganese Ore —		
Antwerp,	100 t.	
Naphthaline —		
Hamburg,	1 ck. 2 cs.	
Ochre —		
Rouen,	52 cks.	
New York,	336 bls.	
Oxalic Acid —		
Rotterdam,	23 cks.	J. Rankine & Son
Paint —		
New York,	1 cs. 1 pcl.	
Potash —		
Rotterdam,	21 cks.	J. Rankine & Son
Potassium Chlorate —		
Rouen,	16 cks.	
Rosin —		
New York,	523 bls.	J. Rankine & Son
Rotterdam,	6 cks.	
Salt —		
Trieste,	18 bls.	
Saltpetre —		
Calcutta,	1 bx.	
Soap —		
Newport News,	691 bls.	Wm. Buntin & Co.
"	155	
Rotterdam,	2 cs. J. Rankine & Son	
Trieste,	49	
Starch —		
Baltimore,	300 sks.	
New York,	900	925 bgs.
Stearine —		
Rotterdam,	16 cks. 27 bgs.	J. Rankine & Son
Sulphur —		
Messina,	30 cks.	W. Buntin & Co.
Tallow —		
New York,	50 tics.	
Treacle —		
New York,	365 bls.	
Ultramarine —		
Rotterdam,	10 cs.	J. Rankine & Son
Yarnish —		
New York,	15 bls.	
White Lead —		
Rotterdam,	68 cks.	J. Rankine & Son
Wood Pulp —		
Rotterdam,	287 pks.	J. Rankine & Son
Drontheim,	500 bls.	
Halmstad,	3,793	J. T. Salvesen & Co.
"	1,278	
Zinc Oxide —		
New York,	100 bls.	
Zinc White —		
Rotterdam,	100 cks.	J. Rankine & Son

TYNE.

Week ending January 16th.

Asbestos —		
Hamburg,	2 cs.	Tyne S. S. Co.
Barytes —		
Antwerp,	310 bgs.	Tyne S. S. Co.
Cod Oil —		
Bergen,	3 bls.	
Colours —		
Antwerp,	5 cks.	Tyne S. S. Co.
Hamburg,	3	"
Farina —		
Antwerp,	3 bgs.	Tyne S. S. Co.
Glue —		
Antwerp,	1 ck.	Tyne S. S. Co.
Hamburg,	5	"
Kieselguhr —		
Bergen,	958 bgs.	
Limestone —		
Antwerp,	3 crts.	Tyne S. S. Co.
Pyrites —		
Huelva,	1,571 t.	Tharvis Sulphur & Copper Co.
Saltpetre —		
Hamburg,	22 cks.	Tyne S. S. Co.
Soda —		
Rotterdam,	1 bg.	Tyne S. S. Co.
Starch —		
Rotterdam,	90 cs.	Tyne S. S. Co.
Wood Pulp —		
Gothenburg,	247 pks.	
Christiania,	61 cs.	
Laurvig,	300 bls.	

GOOLE.

Week ending January 15th.

Alkali —		
Calais,	5 cks.	
Barytes —		
Antwerp,	3 cks.	
Caoutchouc —		
Boulogne,	2 cks.	
Colours —		
Hamburg,	22 cks. 7 cs.	
Rotterdam,	1	
Dyestuffs (otherwise undescribed)		
Rotterdam,	300 cks. 55 cs.	
Boulogne,	38	1
Extracts —		
Antwerp,	2 cks.	
Farina —		
Hamburg,	100 bgs.	
Potash —		
Hamburg,	40 dms.	
Calais,	6	
Saltpetre —		
Hamburg,	60 cks.	
Rotterdam,	100 bgs.	
Salts —		
Hamburg,	11 cks. 9 cs.	
Soap —		
Boulogne,	1 ck.	
Tartaric Acid —		
Rotterdam,	3 cks.	
Waste Salt —		
Hamburg,	1,196 cks.	30 t.
Wood Pulp —		
Rotterdam,	51 bls.	

GRIMSBY.

Week ending January 16th.

Albumen —		
Hamburg,	8 cks.	
Caoutchouc —		
Antwerp,	3 cs.	
Chemicals (otherwise undescribed)		
Hamburg,	5 cs.	
Antwerp,	0	
Colours —		
Rotterdam,	5 cks.	
Hamburg,	50 cs.	
Antwerp,	77	
Dyes —		
Hamburg,	1 ck.	
Farina —		
Hamburg,	165 bgs.	
Pitch —		
Hamburg,	2 bgs.	
Saltpetre —		
Antwerp,	170 bgs.	
Wood Pulp —		
Fredrikshald,	556 t.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 20th.

Alkali—		
Freemantle, 4 c.	£11	
Alum—		
Canterbury, 2 c.	£13	
Ammonia—		
Cape Town, 12 cs.	£18	
Calcutta, 8	11	
Ammonia (Liquid)—		
B. Ayres, 20 cs.	£28	
Ammonium Carbonate—		
Dunedin, 5 cs.	£12	
Bordeaux, 10 cks.	40	
Calcutta, 10	11	
B. Ayres, 1 t.	31	
Brisbane, 1	10	
Ammonium Chloride—		
Bourgas, 3 t. 15 c.	£116	
Antwerp, 1	10	
Galatz, 1	35	
Constantinople, 5	155	
Salonica, 1	35	
Ammonium Sulphate—		
Amsterdam, 193 t.	£1,255	
Ghent, 178	1,444	
Dunkirk, 562 18 c.	4,411	
Bremen, 200	1,575	
Ostend, 145	1,160	
Jamaica, 15	120	
Martinique, 60	428	
Castellon, 100	800	
Guadeloupe, 10 3	90	
Hamburg, 150	1,190	
Anhydrous Ammonia—		
Kurrachee, 2 cs.	£19	
Arsenic—		
Colombo, 10 kgs.	£16	
Singapore, 20	14	
Natal, 10 dms.	13	
Gothenburg, 2 brl.	10	
Bisulphite of Lime—		
Calcutta, 2 t. 2 c.	£39	
Bleaching Powder—		
Pt. Elizabeth, 18 c.	£10	
Boric Acid—		
Brisbane, 1 t.	£34	
Borax—		
Auckland, 5 cs.	£29	
Newcastle, 6 pks	12	
Adelaide, 2	19	
Normanton, 10 kgs.	10	
Carbolic Acid—		
Hong Kong, 30 dms.	£12	
Santos, 153	45	
Genoa, 30 cks.	70	
New York, 10	79	
Algoa Bay, 24	10	
Carbon Bisulphide—		
Sydney, 100 dms.	£44	
Carbonic Acid Gas—		
Jemey, 33 tubes	£12	
Caustic Soda—		
Lyttelton, 9 t. 16 c.	£69	
Napier, 5 7	48	
Christchurch, 15	9	
Natal, 16	20	
E. London, 1 6	28	
Freemantle, 4 2	21	
Algoa Bay, 3 7	40	
Chemicals (otherwise undes.)—		
Yokohama, 6 cks.	£14	
Singapore, 8 cs.	25	
E. London, 100 dms.	35	
Madras, 25 pks.	15	
Algoa Bay, 1	34	
B. Ayres, 40	67	
Calcutta, 2	14	
Wellington, 3	66	
Rotterdam, 1	9	
Kurrachee, 13	32	
Roston, 1	46	
Valparaiso, 3	26	
Pt. Elizabeth, 11	22	
Kingston (Jam.), 1 cs.	10	
Natal, 3	18	
Otago, 7	67	
Brisbane, 4	38	
Dunkirk, 20	75	
Sydney, 20	13	
Bombay, 16	10	

New York, 1 ck.	36	
Cape Town, 13	12	
Halifax, 13	71	
Melbourne, 36	6	372
Citric Acid—		
Bombay, 2 c. 4 cs.	£35	
Santander, 10 kgs.	58	
Copenhagen, 1 ck.	30	
N. York, 22 pks.	175	
Brisbane, 1 tank	13	
Yokohama, 10	58	
Reval, 15	85	
Sydney, 2 t.	204	
Calcutta, 2	13	
New Plymouth, 2 kgs.	13	
Coal Products—		
Alizarine		
New York, 27 cks.	£306	
Boston, 50	581	
Aniline Dyes		
Melbourne, 6 cs.	£57	
Aniline Oil		
New York, 1 ck.	£38	
Aniline Salts		
New York, 32 cks.	£309	
Philadelphia, 12	75	
Benzine		
Melbourne, 44 crts.	£63	
Benzol		
Amsterdam, 12 dms.	£310	
Boulogne, 24 cks.	139	
Creosote		
Singapore, 180 dms.	£66	
Dyes		
Boston, 13 cs.	£140	
Naphtha		
Treport, 40 brls.	£170	
Calais, 48 cks.	128	
Boulogne, 48 rmls.	94	
Melbourne, 50 crts.	77	
Sydney, 5	7	
Naphthaline		
Havre, 1 brl.	£12	
Philadelphia, 680 bgs.	134	
Bombay, 2 cks.	8	
Hamburg, 6	50	
Rotterdam, 10 pks.	9	
Amsterdam, 10	9	
Treport, 300	189	
Pitch		
Newport News, 199 cks. 1,634 bgs.	£403	
Newcastle, NSW, 10 brls.	7	
New York, 100 100 tcs.	250	
Cette, 852 t.	1,108	
Dunkirk, 2,227	4,493	
Prussian Blue		
Dusseldorf, 12 cks.	£146	
Pyridine		
Stettin, 4 cks.	£45	
Tar		
Natal, 450 pks. 105 dms.	£43	
Hamburg, 200 brls.	85	
Tar Oil		
Rotterdam, 15 cks.	£40	
Toluol		
Hamburg, 50 cks.	£312	
Copper Sulphate—		
Genoa, 21 t. 2 c.	£350	
Bordeaux, 43	778	
Marseilles, 40	736	
Paris, 64 10	1,167	
B. Ayres, 10	14	
Cette, 198 15	3,587	
Copperas—		
Constantinople, 10 t. 7 c.	£25	
Cream of Tartar—		
Lyttelton, 10 kgs.	£41	
New Plymouth, 5	21	
Newcastle, 10	40	
Dunedin, 1 t.	15 pks. 148	
Brisbane, 10 cs.	40	208
Cooktown, 10	3	13
Adelaide, 10	40	
Wellington, 10	42	
Normant'n, 15	69	
Melbourne, 25	142	
Disinfectants—		
Cape Town, 1,220 dms.	£140	
Freman'te, 3 pks.	11	
Hamburg, 50 cks.	250	
Bordeaux, 4	12	
Otago, 11 cs.	33	
Sydney, 11	74	
Melbourne, 105	83	
Natal, 7	3	74

Bombay, 275 70 16	230	
Algoa Bay, 40 60	87	
Adelaide, 5 4	25	
Guano—		
Morlaix, 305 t.	£2,592	
Lead Acetate—		
Otago, 4 kgs.	£11	
Melbourne, 1 t.	14	
Lime—		
St. Kitts, 15 puns.	£21	
Manure—		
Martinique, 50 t.	£90	
Havre, 30	100	
Bordeaux, 41	105	
Rochefort, 100	320	
Brest, 111 16 c.	896	
Jersey, 154 12	997	
Colombo, 30	150	
Granville, 107 13	790	
Genoa, 98 10	240	
Cape Town, 20 10	107	
Myrbane—		
Hamburg, 1 runlet	£12	
Dunkirk, 6 dms.	10	
Levuka, 2 cs.	10	
Oxalic Acid—		
Melbourne, 3 cks.	£32	
Yokohama, 1 t.	235	
Oxygen—		
Amsterdam, 2 cs.	£78	
Phosphate—		
Calcutta, 5 t.	£13	
Phosphate of Lime—		
New York, 2 t. 15 c.	£67	
Phosphoric Acid—		
Barbadoes, 4 cks.	£4	
Paris, 17 carboys	90	
Phosphorus—		
Dunedin, 10 cs.	£98	
Melbourne, 24	233	
Wellington, 8	84	
Potash—		
Rio de Janeiro, 12 c.	£13	
Hamburg, 1 ck.	18	
Potash Salts—		
Madras, 13 t. 4 c.	£600	
Potassium Chlorate—		
Libau, 10 kgs.	£20	
Cape Town, 3 t.	118	
Pt. Elizabeth, 1	39	
Otago, 5 c.	9	
Potassium Cyanide—		
Natal, 1 cs.	£10	
Melbourne, 1	15	
New York, 25	187	
Townsville, 80	934	
Potassium Prussiate—		
Hamburg, 10 t. 1 ck.	£18	
Philadelphia, 16	1,426	
New York, 1 kg. 61	825	
Barcelona, 11 c. 5	92	
Genoa, 1	20	
Saltpetre—		
Rio de Janeiro, 13 t. 3 c.	£296	
M. Video, 1 1	22	
Gothenburg, 1	20	
Algoa Bay, 25 cs.	11	
Pernambuco, 17 2	385	
Oporto, 1 17	37	
Newcastle, 1	22	
Dunedin, 1 5	28	
Canterbury, 10	11	
Salts of Tartar—		
Sydney, 10 c.	£11	
Sheep Dip—		
Punta Arenas, 100 cs.	£200	
N. Orleans, 250	500	
E. London, 500	1,000	
Geralton, W. A., 10 dms. 15	3,202	
B. Ayres, 100 cs. 10 t. 2 c.	971	
Algoa Bay, 500 cs.	92	148
Lyttelton, 11	12	
Jamaica, 11	12	
Townsville, 50	7	

Soda—		
Cape Town, 11 t. 12 c.	£27	
Soda Ash—		
Launceston, 5 t. 17 c.	£27	
Soda Crystals—		
Algoa Bay, 6 t. 14 c.	£16	
Sydney, 4 10	13	
Newcastle, 110 2	255	
Sodium Acetate—		
Brisbane, 8 c.	£25	
Melbourne, 2 t. 2	28	
Sodium Bicarbonate—		
Auckland, 1 t.	£8	
Colombo, 1 2 c.	8	
Bombay, 2	24	
Normanton, 1	8	
Algoa Bay, 10	6	
Sodium Nitrate—		
Rockhampton, 55 cks.	£—	
Sodium Prussiate—		
Barcelona, 6 pks.	£55	
Sulphur—		
E. London, 25 cks. 50 kgs.	£39	
Algoa Bay, 22 t. 6 c.	202	
Trinidad, 18	8	
Pernambuco, 50	23	
Sulphuric Acid—		
Trincomealee, 19 cs.	£18	
Natal, 25	19	
Superphosphates—		
Cape Town, 302 t. 12 c.	£1,074	
Tartaric Acid—		
Lyttelton, 2 kgs.	£11	
Cape Town, 1 ck.	13	
Brisbane, 6 cs.	34	
Newcastle, 20	107	
Yokohama, 15	81	
Calcutta, 4	24	
Algoa Bay, 1 t. 5	27	
Bombay, 1 t.	14	
Melbourne, 45	250	
Valencia, 5 c.	27	
Bourgas, 1 ck.	16	
Normanton, 2 cs.	10	
Waste Salt—		
Barcelona, 15 t. 3 c.	£101	
Zinc Sulphide—		
Sydney, 10 c.	£7	

LIVERPOOL.

Week ending January 20th.

Albumen—		
Boston, 3 t. 4 c.	£75	
Alum—		
Alexandretta, 2 t. 10 c.	£12	
Patras, 2 3	10	
Adelaide, 1	6	
Sydney, 1 1	5	
Varna, 7 15	36	
Syria, 1 1 1 q.	5	
Cape Town, 1 13 1	8	
Alum Cake—		
Melbourne, 6 t. 3 q.	£19	
Ammonium Carbonate—		
Oporto, 18 c.	£26	
Ammonium Chloride—		
Alexandria, 1 t.	£35	
Barcelona, 2	37	
Beyrout, 15 c.	25	
Naples, 10	10	
Gothenburg, 1 11 2 q.	94	
Smyrna, 2 6	7	
Syria, 4 2	8	
Vigo, 4 10	17	
Sydney, 1	32	
Samsoun, 1		

Ammonium Sulphate—

Las Palmas,	15 t.	10 c.	£120
La Pallice,	25	8	3 q
Philadelphia,	50	14	418
Cullera,	50	11	2
Genoa,	51	3	395
Valencia,	101	5	986

Arsenic—

Portland, M.,	10 t.	7 c.	£237
---------------	-------	------	------

Bleaching Powder—

Baltimore,	57 cks.		
Barcelona,	27		
Boston,	420		
Nantes,	31		
New York,	266		
Philadelphia,	139		
Rio de Janeiro,		8 brls.	
Rouen,	20		
San Francisco,		50	40 bxs.
Vigo,	19		

Boric Acid—

Portland, M.,	4 t.		£110
Antwerp,	6	17 c.	2 q.

Borax—

Ghent,	1 t.		£20
St. John, N.B.,	5	4 c.	94
Antwerp,	11	5	2 q.
Rotterdam,	28	3	2
Hamburg,	13	14	1

Calcium Chloride—

Calcutta,		19 c.	£2
Melbourne,	5 t.		12
San Nicholas,	4	19	11

Carbolic Acid—

Rotterdam,	7	10 c.	£397
B. Ayres,	4	13	113
Bombay,	8	1	48
Constantinople,	5	3 q.	20

Carbon Bisulphide—

Rio de Janeiro,	1 t.		£12
-----------------	------	--	-----

Caustic Potash—

San Francisco,	4 t.	1 c.	£88
Brisbane,	12		16

Caustic Soda—

Adelaide,	15 dms.		
Alexandria,	35		
Algoa Bay,		40 cs.	
Baltimore,	200		
Barcelona,	167	40 pks.	
Bari,	54		
Bombay,	70		
Boston,	25		
Bremen,		5 brls.	
B. Ayres,	100		
Genoa,	155		
Havre,	30		
Lisbon,	20		
Mexico,	10		
New York,	302		
Palermo,	30		
Paris,	52		
Portland, M.,	100		
Port Natal,		28 bxs.	
Rio de Janeiro,	8		
Rotterdam,	26		
Rouen,	4		
St. John, N.B.,	30		
St. Nazaire,	14		
San Francisco,	100	180 pks.	
Seville,	325		33
Singapore,	20		
Sydney,	90		
Venice,	4		
Valparaiso,	150		
Vigo,		10	

Chemicals (otherwise undescribed)

Calcutta,	64 t.	4 c.	£160
Rotterdam,	1	7	37
Hamburg,	3		5
Antwerp,	13		23
Rosario,	1		11
Philadelphia,	13	12	418

China Clay—

Boston,	404 cks.		
Calcutta,	20 t.		
Colombo,	20		
Genoa,	20		
Portland, M.,	290		
St. Domingo,	30		
St. John, N.B.,	20		
Santos,	30		

Citric Acid—

B. Ayres,	4 c.		£23
-----------	------	--	-----

Coal Products—

Amfine Co ours			
New York,	12 cks.		
Amfine Oil			
Barcelona,	2 dms.		
Paris,	2		
Amfine Salts			
New York,	30 cks.		
St. Nazaire,	20		
Syria,	1 brl.		

Pitch

Rouen,	2 cks.		
Salles d'Oronne,	5 t.		
Valparaiso,	250 brls.		
Vigo,	40 brls.		

Tar

Accra,	12 brls.		
Sierra Leone,	20 kgs.		
Victoria, B.C.,	20 brls.		

Tar Oil

New York,	50 cs.		
-----------	--------	--	--

Copper Sulphate—

Brisbane,	1 t.		£12
Talcahuano,	6	14 c.	117
Algiers,	1		15
Alexandretta,	1		17
Trieste,	5	2	81
Barcelona,	20	2	352
Newcastle,		10	9
Dunedin, Whf.,		10	9

Bail

Fiume,	4	18	2
Santos,	11	15	3
Ghent,	9	11	3
Rouen,	4	10	90
Cette,	159	8	3
Varna,	1	10	3
Ancona,	16	19	1
Venice,	187	15	1
Paris,	251	10	1
Naples,	131	14	2
Bordeaux,	10	2	177
Nantes,	21	4	338
Genoa,	74	16	2
Leghorn,	25		421

Copperas—

Alexandretta,	4 t.	15 c.	£8
Patras,	3	10	5
Tripoli,	3		5
Varna,	7	12	1 q.
Talcahuano,	2	10	0

Disinfectants—

Manaos,		8 c.	£10
Bombay, 500 gls.			99
Mosel Bay,	1 t.	4	2 q.

Guano—

Bilbao,	1 t.		47
---------	------	--	----

Indigo Waste—

New York,	5 t.	15 c.	£135
-----------	------	-------	------

Iron Oxide—

Valparaiso,	10 t.		£70
-------------	-------	--	-----

Lima—

C. C. Castle,	10 t.		£28
Lagos,	3		5

Magnesia—

Rosario,	12 lbs.	8 c.	2 q.
Tampico,	7		2
New York,	4 cs.	1 ck.	18
Algoa Bay,	6		

Magnesium Carbonate—

Vera Cruz,	4 c.		£6
------------	------	--	----

Manure—

Bordeaux,	10 t.	16 c.	2 q.
Las Palmas,	35		402

Oxalic Acid—

Boston,	5 t.	12 c.	£200
Montreal,	1	19	3 q.

Paint—

Accra,		12 kgs.	
Appam,		8	
Barbadoes,		5 cks.	6

Beyrout,	3		18 dms.
Bombay,		85	
Buenaventura,		6 cs.	
Cadiz,		100 dms.	
Calcutta,	37	120	84
Cartagena, S.A.,	1		10 cs.
Ferrol,	1		
Gd. Bassam,		70	
Guayaquil,		40 dms.	
Half Jack,		100	
Havana,	350 cs.		25
Ilo Ilo,	10	750	
Iquique,	40		
Jaffa,	3		
Lisbon,		15	46
Lome,		16	
Manila,		50	
M. Video,	4		
New York,	11		
Pernambuco,		3	
Portland, M.,	4 brls.	1 cs.	
Porto Plata,		3 cks.	
Quitta,	8 pks.		
Kangoon,		2	
San Juan,	1	23	
Sierra Leone,	120		
Tampico,	3		160
Teneriffe,		20 dms.	
Tripoli S.,		25	
Vera Cruz,			

Painters' Colours—

Akassa,	53 kgs.		
Alexandria,		2 brls.	
Bombay,	440 dms.		
New York,	10 cks.		
Para,	20	8	9
Rio de Grande,	4 cs.		30
Valparaiso,	200		

Paraffin Wax—

Alexandria,		5 cs.	
Bombay,		60	
Bordeaux,		5 cks.	
Para,		5 pks.	
Pernambuco,		0 pks.	

Phosphorus—

Tampico,		5 c.	£37
Higo,	1 t.		360

Pieric Acid—

Tampico,		2 c.	£5
----------	--	------	----

Potashes—

B. Ayres,	1 t.	2 c.	£25
-----------	------	------	-----

Potassium Bichromate—

Vera Cruz,	1 t.	3 c.	1 q.
Constantinople,		7	3

Potassium Chlorate—

Porto Alegre,	2 t.		£74
Rotterdam,		10 c.	19
New York,	5		188
Naples,	1	10	54
Higo,	15		510
Yokohama,	5		174
Sydney,	5	10	185

Rosin—

Cartagena, S.A.,	20 brls.		
------------------	----------	--	--

Salt—

Abonema,	10 t.		
Akassa,	300		
Antwerp,	255		
Barbadoes,	50		
Bombay,	3	13 c.	
Bonny,	11		
Boston,	100		
B. Ayres,	50		
Calcutta,	2,362		
Cape Palmas,	14	14	
Conakry,	20		
Copenhagen,	912		
Delagoa Bay,	30		
E. London,	8	18	
Ghent,	50		
Iquitos,	14	14	
M. Video,	25		
N. Orleans,	1,000		
New York,	7	14	
Old Calabar,	10		
Rotterdam,	200		
Savannah,	475		
Sierra Leone,	150	10	
Talcahuano,	4	5	
Trinidad,	70	4	
Valparaiso,	280		
Victoria, B. C.,	25		
Winnabab,	14	15	

Salt Cake—

Baltimore,	177 t.	7 c.	£308
Naples,	37		53

Saltpetre—

Aracaju,	4 t.	3 c.	1 q.
----------	------	------	------

Sheep Dip—

Baltimore,	3 t.	14 c.	£96
B. Ayres,	1	3	70

Soap—

Addah,		50 bxs.	
Akassa,		53	
Alexandria,		20	3 brls.
Algoa Bay,	1,773		75
Antwerp,		1,800	
Arica,		1	
Baltimore,		3	
Barbadoes,	302		
Bombay,		23	
Bordeaux,		625 bdls.	
Boston,		1,500	
B. Ayres,		6 brls.	4
Calcutta,		375 bdls.	25
Cape Town,	2,773		
Cartagena, S.A.,		2	
Chama,	150		
Colombo,		3	
Constantinople,		33	
Corinto,	140		
Curacao,	479		
Delagoa Bay,	925		30
Drewin,	56		
E. London,	3,401		11
Gibraltar,	200		
Iquitos,	150		
Karachi,	42		
Lagos,	790	10	4
La Guayra,	75		
Lome,	50		
Malaga,		1	
Manaos,	501		

Monrovia,

M. Video,	15		
New York,		1,572	
Opobo,	950		
Old Calabar,	600		
Para,	30		
Paris,		50	
Penang,		10	
Pt. Elizabeth,	360	12	20
Pt. Natal,	4,150	50	
Quittab,	25		
Rotterdam,		320	
St. John's, Nfld.,	60	1 ck.	
Salt Pond,	40		
Sapeli,	100		
Santander,		1	
Sierra Leone,	130		
Singapore,	230		10
Teneriffe,	705		
Trinidad,	260		
Valparaiso,		1	

Soda Alkali—

Corfu,		35 brls.
--------	--	----------

16 c.
40 kgs.
50
20 t. £241

CHESTER.

ing January 20th.

7 brls.
Carbonate—
30 cks.
Chloride—
50 brls.
Sulphate—
503 bgs.
ours—
18 cks. 3 kgs.
1 cs. 3
1 4 pks.
2 kgs.

1 cs. 16 pks.
id—
2 cs.
da—
100 dms.
5
(otherwise undescribed)
10 cks.

10 bgs.
phate—
2 cks.
Oil—
50 brls.
10 cks.

10 cks.
Sulphate—
40 kgs.
60 bgs.
Colours—
65 cks. 10 brls.
877 t.
13 cks.

3 cs. 70 bgs.
seniate—
2 cks.
carbonate—
100 kgs.
icate—
10 brls.
10 cks. 10 dms.
25 cks. 30 dms.

HULL.

ing January 16th.

120 bgs.
47 cks. 35 dms.
70
n Sulphate—
850 bgs.
807

25 cks.
40 brls.
Powder—
21 cks.
63
acid—
21 brls.

34 dms.
(otherwise undescribed)
5 cks.
14
1 cs.
1
3
15 20
44

Ghent, 26 1 pk.
Gothenburg, 5
Hango, 1
Hamburg, 10 137 2
Königsberg, 5 1
Naples, 3
Reval, 3
Rotterdam, 76

Cottonseed Oil—
Amsterdam, 1,819 c.
Antwerp, 801
Bergen, 35
Bremen, 375
Copenhagen, 69
Constantinople, 62
Drontheim, 52
Hamburg, 372
Leghorn, 120
Marseilles, 10,561
Rotterdam, 543
Trieste, 100

Dyestuffs (otherwise undescribed)
Christiania, 74 bgs.

Lamp Black—
Amsterdam, 37 cks.

Linseed Oil—
Antwerp, 31 c.
Bergen, 83
Bordeaux, 35
Bremen, 204
Christiania, 291
Christiansand, 34
Drontheim, 42
Hamburg, 106
Rotterdam, 4
Trieste, 118

Painters' Colours—
Amsterdam, 34 cks.
Antwerp, 104 55
Bordeaux, 4
Bremen, 22
Copenhagen, 2
Christiania, 52 1
Constantinople, 4
Fiume, 7
Ghent, 24
Gothenburg, 5
Genoa, 20
Hamburg, 5 3 dms. 20 bgs.
Leghorn, 15
Messina, 8
Marseilles, 43
Odessa, 272
Reval, 10
Rotterdam, 13 3 1 pk.
Stettin, 15 1
Trieste, 12

Paraffin Wax—
Danzig, 50 bgs.
Hango, 50
Hamburg, 2
Bremen, 700 bgs.

Phosphate Meal—
Bremen, 700 bgs.

Pitch—
Antwerp, 340 t.
Dunkirk, 120

Soda Ash—
Naples, 30 cks.

Starch—
Christiania, 20 bgs.

Tar—
Genoa, 20 dms.
Hamburg, 5 cks.

Varnish—
Antwerp, 8 cks. 22 dms.
Bordeaux, 2
Drontheim, 1 bl.
Hamburg, 1
Reval, 1 11
Rotterdam, 2

GLASGOW.

Week ending January 21st.

Ammonium Chloride—
Italy, £61

Ammonium Sulphate—
Italy, 89 t. 12½ c.
Demerara, 28
Jersey, 40 3
Cette, 50

Boric Acid—
Yokohama, £71

Borax—
Lisbon, £21. 15s.

Carbolic Acid—
Rotterdam, 5 t. 15 c.

Carbolic Acid Gas—
Rangoon, £130

Coal Products—
Alizarine Colours
Lisbon, £60

Naphtha
Clermont, £50
Lyons, 101
Paris, 151

Pitch
Genoa, £3,291
Nova Scotia, 41
Italy, 783
Cette, 976 t.

Tar Acids
U.S.A., £35

Coal Products (otherwise undes.)—
Rotterdam, £579

Dyestuffs (otherwise undes.)—
Lisbon, £160

Gelatine—
U.S.A., £304

Linseed Oil—
Hong Kong, 7 t. 17½ c.
Yokohama, 24 6½

Logwood—
Lisbon, £56

Manure—
Jersey, 110 t. 1½ c.

Paint—
Natal, £38
Shanghai, 75
Transvaal, 29
Yokohama, 1,870
Esperance Bay, 53
Rangoon, 27

Painters' Colours—
Singapore, £162
Rotterdam, 44
Huelva, qty.
Rangoon, 225

Paraffin Wax—
Paris, £60
Bergen, 5 c.
Christiania, 21

Potassium Bichromate—
Italy, £324
Rouen, 333
Antwerp, 347
U.S.A., 514

Potassium Chlorate—
Sydney, 263

Rosin Oil—
Rotterdam, £20

Salt—
Richmond, 10 t. 10 c.

Sheep Dip—
Be Ayres, £142

Sodium Bichromate—
Ghent, 5 t. 1 c.
Italy, 16 6
Rouen, 23 1
Antwerp, 2 17½

Starch—
Germany, 3¾ c.

Sulphuric Acid—
Rangoon, £231

Superphosphates—
Jersey, 225 t. 4½ c.

Tallow—
Rotterdam, 6 t. 15 c.

Treacle—
Bergen, 5 t. 6½ c.
Freemantle, 2 10
Christiania, 20 18

Varnish—
Singapore, £22

White Lead—
Singapore, £35

Zinc Ashes—
Rotterdam, 56 t. 9 c.

TYNE.

Week ending January 16th.

Alkali—
Amsterdam, 10 t. 3 c.
Christiania, 7 12

Ammonium Carbonate—
Seville, 10 c.

Ammonium Chlorate—
Barcelona, 1 t.

Antimony—
Copenhagen, 6 c.

Bleaching Powder—
Antwerp, 86 t. 15 c.
Rotterdam, 19 8
Gothenburg, 5 1
Copenhagen, 95 6
Christiania, 43 4

Caustic Soda—
Antwerp, 9 t. 17 c.
Hamburg, 9 17

Seville, 4 11
Barcelona, 37 16
Valencia, 33 17
Christiania, 4 8

Colours—
Hamburg, 14 c.

Guano—
Jersey, 1,100 t.

Litharge—
Gothenburg, 6 c.
Hamburg, 1 t. 3

Magnesia—
Antwerp, 1 c.
Hamburg, 14
Barcelona, 6 t. 8
Leghorn, 3

Manure—
Valencia, 259 t.

Oxalic Acid—
Seville, 6 c.

Paint—
Hamburg, 1 t. 10 c.

Soda—
Nakskov, 14 t. 18 c.
Rotterdam, 15 3
Seville, 5 4
Gothenburg, 10 2
Christiania, 21 8

Sodium Hyposulphite—
Barcelona, 1 t.

Sodium Silicate—
Seville, 1 t. 3 c.

Sodium Sulphate—
Odense, 3 t. 10 c.
Seville, 1

Sulphur—
Gothenburg, 20 t.

Superphosphates—
Valencia, 50 t.

Tallow—
Hamburg, 4 t. 17 c.
Leghorn, 17

Varnish—
Pomaron, 3 q.

Zinc Ashes—
Rotterdam, 5 t. 3 c.

GOOLE.

Week ending January 13th.

Benzol—
Rotterdam, 95 cks. 6 dms.

Chemicals (otherwise undescribed)
Amsterdam, 20 cks.
Rotterdam, 21

Coal Products (otherwise unaes.)—
Amsterdam, 28 pks.

Antwerp, 2 cks.
Ghent, 3
Boulogne, 32 3 cs.
Hamburg, 11
Rotterdam, 135 4

Colours—
Ghent, 6 cks.
Harlingen, 1 40 bgs.

Dyestuffs (otherwise undescribed)
Ghent, 1 cs.

Manu e—
Hamburg, 40 cks.

Pitch—
Ghent, 284 bgs.

Antwerp, 500 t.
Dunkirk, 18

GRIMSBY.

Week ending January 16th.

Alkali—
Hamburg, 20 cs.

Caoutchouc—
Port au Prince, 1 cs. 4 bls.
Rotterdam, 1

Chemicals (otherwise unaescribed)
Hamburg, 5 cks.

Coal Products (otherwise undes.)—
Dieppe, 84 cks.
Hamburg, 18 20 dms.

Colours—
Hamburg, 2 cs.
Malmo, 1 ck.
Port au Prince, 41 pks.

Soap—
Antwerp, 1 ck.

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

No. 507.

SATURDAY, FEBRUARY 6, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Storage of Calcium Carbide	Selected Correspondence
Acetylene	Trade Notes
Improved Centrifugal Pump	Tar and Ammonia Products
Patent List	Report on Manure Material
List of Latest Complete Specifications	Miscellaneous Chemical Market
.....	The Metal Markets
.....	Hull Paint, Oil, and Colour Report
.....	Liverpool Oil and Colour Market
.....	Tyne Chemical Report
.....	West of Scotland Chemicals
.....	New Companies
.....	Gazette Notices
.....	Imports
.....	Exports
.....	Prices Current

Notices.

communications for the *Chemical Trade Journal* should be sent, and Cheques and Post Office Orders made payable to—**DAVIS BROS., 32, Blackfriars Street, MANCHESTER.**

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, to the *Chemical Trade Journal*,—payable in advance,—including postage part of the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Subscribers will oblige by making their remittances for subscriptions by cheque or Post Office Order, crossed and payable to "Davis Bros."

Readers are invited to forward items of intelligence, or cuttings from local newspapers, of interest to the trades concerned.

Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday evening**.

Articles, reports, and correspondence on all matters of interest to chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

Advertisements.

Small Advertisements of Situations Vacant, Premises on Sale or To be Let, and various Wants, and Specific Articles for Sale by Private Contract are taken in the *Chemical Trade Journal* at the following rates:—

31 Words and under	2s. 6d. per insertion
Each additional 10 words	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the rates when prepaid, viz.:—

30 Words and under	1s. 0d. per insertion
Each additional 10 words	0s. 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on request.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

THE STORAGE OF CALCIUM CARBIDE AND ACETYLENE.

THE production of calcium carbide is on the increase both abroad and in this country, as it is now being made at the Falls of Foyers, the manufacturing syndicate having acquired part of the spare power and space of the British Aluminium Co., Limited.

Seeing, therefore, that this article is now passing from the experimental into the industrial field, it naturally becomes a matter of considerable importance that its properties should be rightly judged, especially in regard to the questions of transit and storage.

It would seem that certain false impressions have got about, and these have well-nigh scared the Fire Insurance offices in this country. The next thing will be that the railway and canal companies will take fright and begin to impose prohibitive rates, and in this way a deserving, if youthful, aspirant for honours in the field of industry will be unfairly handicapped in the race to the front.

A circular has been issued by the Fire Offices' Committee in which a great case is made out against the carbide on the ground that its storage entails risk to life and property. Liquid acetylene is also referred to in the circular, and their statements concerning the latter are such as to give a clue to the origin of the whole thing.

All the trouble has, we think, undoubtedly arisen through a certain amount of misunderstanding and confusion of ideas. It would seem that the Fire Insurance people have not been quite clear as to the difference in the nature of calcium carbide and acetylene gas. Knowing that the one generally had something to do with the other, they have evidently thought that they were pretty much of a muchness, and made no distinction. Coupled with this confused notion of these two very different products, they have been frightened by the accidents which have occurred recently with *liquid* acetylene.

Now, not only is it necessary to make a careful distinction between the carbide and acetylene, but it is also of importance to differentiate between liquid acetylene and compressed gaseous acetylene—say, at a pressure of ten atmospheres. This the insurance companies have not done, but, on the other hand, they have issued notices to wharves and warehouses to the effect that calcium carbide is of an inflammable nature and *explosive*, with the result that wharfingers and others cannot and will not have anything to do with it.

This is manifestly foolish when the characteristics of the carbide are rightly understood, as on the Continent every facility is being offered for the furtherance of this new industry. We have too many restraints to trade in this country as it is, and it behoves us to watch carefully so as to prevent any extension of this policy of needless hampering.

We purpose, therefore, reviewing the position in regard to the three classifications we have indicated above, and we

have no hesitation in stating that we think we shall be able to clearly show how calcium carbide is safe, compressed acetylene gas practically so, while liquid acetylene requires care in handling.

In the first place, calcium carbide is a solid, with a high melting point, and is incombustible. In the presence of water it generates acetylene gas, which is readily combustible, and when diluted with air forms an explosive mixture. It is made by fusing carbon and lime in an electric furnace, the excessive temperature of the electric arc being absolutely essential to effect the combination of the two substances named. This fact of itself explodes entirely the unaccountable belief that it is *explosive*. It is also delusive to say it is inflammable. It is a substance which gives off an inflammable gas in the presence of water, but it is not of itself inflammable, and is therefore, in point of safety, a long way ahead of wood, coal, or other such articles, which in the ordinary course of things are not deemed very dangerous. Its behaviour with water raises the question of package. Well packed it is as safe as most things, and safer to store than cotton.

From inquiries prosecuted at home, and also on the Continent, we learn that this article is packed in hermetically soldered tinplate boxes or rivetted metal drums. Tin plates are virtually sheet iron in the case of a fire, and would have to reach a temperature of about 1500° centigrade before they gave way. As regards the conditions of ordinary storage and transit, therefore, calcium carbide is perfectly safe. In the case of a fire the chances are very much against the packages becoming so hot as to melt and let the fused carbide escape, for it must be remembered that the water which would constitute the element of danger when the carbide escaped, would be first of all a source of safety by keeping the metal containers cool. There would be no tendency to explode. Thus when well packed, as is the custom both here and abroad, the carbide is practically safe even in the case of a warehouse fire, being, if anything, much safer under like conditions than lubricating or seed oils, resin, fats, or tallow, and many other drysalteries. So much for the solid carbide of calcium—the compound of lime and carbon.

Acetylene is altogether another matter. It is a very loosely combined gaseous compound of carbon and hydrogen. For storage and transit it is usually compressed in steel or wrought iron cylinders. It is on a par with compressed oxygen, hydrogen, and similar gases. But here again there is no explosive tendency. Blows and shocks do not of themselves start an explosion. A cylinder was crushed by a falling weight, but nothing resulted beyond the destruction of the cylinder and the escape of the gas. In another case a wrought iron bottle filled with compressed acetylene at a pressure of 150 lbs. to the square inch was not exploded by the impact of an iron ball which pierced one side of the bottle and bulged the opposite side. In case of fire they would be more dangerous than the carbide, but the cylinders are generally much stronger than they need be, and will withstand a great pressure, and so cope with the expansion of the gas.

Regarding liquid acetylene, we do not hesitate to say that it is dangerous save under very normal conditions. Even when a cylinder of the liquid is fractured by falling, or otherwise, an explosion generally results, and it is with this particular form of acetylene that the alarming accidents of the last six months have occurred.

We have thus briefly stated the position. There are of course many details that might be argued out, and there are always two sides to a question. We have done our best not

to be unduly biased either way, and as the matter has sufficient importance to warrant a free and full discussion, we take this opportunity of stating that we have thus, as an organ, opened our columns for discussion, in which both sides may be honestly heard; and we trust by so doing that a fair result may be arrived at, and something like a reasonable compromise drafted for the mutual acceptance of both insurers and

AN IMPROVED CENTRIFUGAL PUMP

PUMPS are indispensable in the chemical and allied trades, and frequently have occasion to direct attention to various improvements. The Rapid Centrifugal Pump (Beaumont's Patent) has many important features to commend it. By the adoption of an improved principle and form of construction, a pump is obtained having capacity, suction and lifting power, combined with extreme efficiency and durability.

The capacity is certainly remarkable. A one-inch pump will pump 1,200 gallons of water per hour 24-feet high, 13 feet of this being suction. A three-inch pump, driven by an engine with cylinder and 60-lbs. steam pressure, will raise liquid 42-feet high, a rapid flow, the pump running 800 revolutions per minute. As to the question of durability, it being usually necessary to run pumps at much greater speeds. In this connection they have many advantages, as the propeller and spindle are cast in one piece, constituting a permanently economical machine. The construction is noticeable, being five to ten times that of a force or lift pump, to three times that of ordinary centrifugals, so that a smaller pump can be used, or a smaller pump.

They are highly recommended for pumping liquor containing bark or other solid matter, the pump being very free from the tendency to choke which is such an objectionable feature of some pumps of this class. They are constructed in sizes from 1-inch to 16-inch with a suction power ranging from 13-feet for 1-inch to 16-inch size. Numbers 1 to 4 will lift from 35-feet to 90-feet height, and larger sizes to 100-feet.



In addition to water and sludge pumping, they are used for the following:—Chemical, ammonia, sulphuric acid, strong tannic acid (oak bark liquor), boiler composition, syrups, and various kinds, hot brewers' wort, milk of lime, iron liquor, &c. They are found to be the best pump to use in cop and spool dyeing and bleaching kiers, as they are capable of maintaining a vacuum.

The vertical pattern is designed for fixing on the bottom or well, and is so constructed as to entirely empty the container. A desirable feature in the "Rapid" pump is that the liquid manipulation are not diluted—a most essential point in many cases. They are constructed in acid-resisting alloys, for all purposes. The maker undertakes to guarantee the durability for a definite time.

In view of their extensive range of service, manufacturers doubtless be interested in them, and possibly feel disposed to test their efficiency. The test will not prove a matter of serious outlay, as prices are very reasonable. A 1½-inch size, in iron, with fast pulley and strap guide, is quoted at £8. This size has a capacity of 5,000 gallons per hour.

Inquiries should be addressed to Beaumont's Pump Works,

PAYING OFF NITRATE GROUNDS.—A project of law has been introduced into Congress, extending the date of payment of the quotas of the sale price of the nitrate grounds sold by auction capitalists. It is now proposed to divide the amount due into three instalments, payable as to one-sixth at the end of each succeeding half-year, interest added at 10 per cent.

The Patent List.

This list is compiled from Official sources in the Manchester Chemical Laboratory, under the immediate supervision of Mr. E. Davis and Alfred R. Davis, who report professionally the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Process for Generating and Purifying Acetylene Gas. R. J. Moss. 254. January 18.
 Storage Batteries. W. Rowbotham and C. Levett. 1,279. January 18.
 Concentrating Glycerine. E. A. Ruch. 1,355. January 18.
 Process for Treating Tanks. J. E. Bennett and H. Beresford. 1,391. January 19.
 Manufacture of Carburetted Water Gas. W. R. Addicks. 1,398. January 19.
 Storage Batteries. E. J. Wade. 1,430. January 19.
 Sewage. W. J. Engledue. 1,437. January 19.
 Purifying Petroleum and other Oils. G. Varley and A. Jervis. 1,448. January 19.
 Process for Crushing Rock Salt, etc. J. Cleghorn and T. Wilkinson. 1,459. January 19.
 Process for Extracting Gold from Ores. R. Hodgson. 1,508. Jan. 19.
 Precipitation of Gold, etc., from Cyanide Solutions. A. James. 1,555. January 20.
 Bleaching Agent. P. H. Hansen and J. K. Westevgoord. 1,550. January 20.
 Bleaching and Caustic Agent. J. C. F. Müller. 1,554. January 20.
 Hardening or Satin Spar. W. and W. M. Brothers. 1,577. January 20.
 Leather. T. D. Bowman and J. Bowen. 1,587. January 20.
 Drying Air with Waste Gases. W. H. Hill-Hartland. 1,611. January 21.
 Dyeing Process. T. Ingham. 1,629. January 21.
 Generating Carbides. G. de R. de Sales. 1,653. January 21.
 Storage Batteries. W. Rowbotham. 1,714. January 22.
 Process for Treating Sewage, etc. F. P. Candy. 1,722. January 22.
 Improvements in Apparatus and Method of Concentrating Sulphuric Acid. G. D. Howard. 1,762. January 22.
 Improved Manufacture of Calcium Carbide. C. Pond and R. S. Richards. 1,776. January 22.
 Improved Manufacture of Cement. La. Soc. Metal. de Champigneulle et Neuves-Maisons. 1,795. January 22.
 Like Consuming Furnaces. J. Schöberl. 1,844. January 23.
 Improved Manufacture of Cement. La. Soc. Metal. de Champigneulle et Neuves-Maisons. 1,881. January 23.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

These abstracts are specially prepared for the Chemical Trade Journal. ALL RIGHTS of publication are RESERVED. This is the earliest of abstracts of Chemical and allied patents accessible to the public.

Improvements in the Manufacture of Zinc Oxide. Dr. W. Hampe and Dr. C. Schnabel, both of Clausthal University, Germany. Eng. Pat. 3,006, February 20, 1896.

The sulphate, which has been dried so as to remove all water of crystallization, is mixed with fine wood-charcoal dust, and heated steadily to 50°C. for about two hours. The following reaction takes place:—

$$\text{ZnSO}_4 + \text{C} = \text{ZnO} + \text{SO}_2 + \text{CO}.$$

A very complete reaction is obtained, and if the temperature has been fully regulated 78% to 80% of oxide is produced, with only 1/2 to 1% of sulphate and sulphide of zinc. The advantages claimed are that the oxide is formed at a lower temperature than by any other process. The product is practically pure, and the gases given off are useful. The SO₂ can be passed direct into vitriol chambers. Sulphate can be made by the treatment of zinc ores, such as blende, sulphuric acid, which is thus regenerated in the process of making oxide.

Improvements in the Manufacture of Nitrites of Soda and Potash. G. Paul, 123, Palace-road, Tulse Hill, London, S.W. Eng. Pat. 4,743, March 3, 1896.

Nitrites are heated with caustic alkali, sulphur being gradually added to the melted mass. Say, 100 lbs. of Chili saltpetre to 40 lbs. of 70% soda. The two are heated up to a temperature of 240–250°C., and about 14 lbs. of flowers of sulphur are well stirred into the melt. The temperature should be so regulated that the sulphur does not burn. There is a tendency to froth, and it is found that by adding the caustic soda and sulphur successively in two or three small portions this tendency is largely obviated. The nitrite is separated from sulphate of soda by fractional crystallization.

Improvements in the Process of Tanning Hides, Skins, or the Like. J. Blunck, 46, Nowolipiestrasse, Warsaw, Poland. Eng. Pat. 16,764, July 28, 1896.

The object is to thoroughly tan hides, etc., in one to eight days without the aid of mechanical or rotary tanning vats. The skins are prepared in

the usual way, and then treated with a special preparation of vegetable tanning agents. This special preparation consists of adding a certain amount of salt. For instance, 25 kilos. of extract of oak bark, myrabolams, valonia, divi divi, or quebracho-wood are added to 100 kilos. of water. The solution then stands at about 4°Bé. or 5.8°Tw. To this 10 kilos. of dissolved salt are added, so as to bring the tanning liquor up to 8°Bé. or 12°Tw. The rate of tanning varies according to the amount of salt used, and can be shortened at will.

Improvements in the Manufacture of Artificial Stone. A. Cléry, 71, Southampton-row London, W.C. Eng. Pat. 24,242. October 30, 1896.

A semi-plastic combination which sets hard is produced by mixing a solid compound and a liquid, the components of the former being varied to suit requirements. The solid mixtures consist essentially of zinc oxide, pulverised sandstone, crushed granite, or Portland stone with or without sand, in various proportions, which are changed to suit special purposes. Such mixtures are incorporated with a liquid mixture of 35 parts of zinc and 65 of muriatic acid. Any colouring matters can be added. The compost is specially useful for re-facing decayed stone-work, also for lining tanks, cellars, etc., as it is watertight and damp-proof.

Improvements in the Manufacture of Cement or Artificial Stone. F. Turner, 3 Castle Hill, Carnarvon, Wales. Eng. Pat. 2,223. January 30, 1896.

Powdered limestone, waste slate, and stone are mixed in equal proportions with water, either fresh or salt. For cement the slip is spread on layers of coke in a kiln to the desired height for the moisture to be absorbed. The coke becomes impregnated with limestone, which renders it better adapted for the burning operation. For stone, the slip or slurry is run into moulds, and pressed so as to solidify into slabs, etc., for paving or decorative purposes.

Parliamentary Notes.

WOOL SORTING.

IN the House of Commons last week, questioned by Sir C. Dilke, Sir M. White Ridley said a recommendation that wool sorting should be certified as a dangerous trade was made last year by a Departmental Committee, and the trade has been certified accordingly. The rules were now in print, and would be ready for issue shortly. They would be served in the usual course on occupiers of works in which hair or wool (other than British wool) was sorted.

CHEAP OIL LAMPS.

Captain Donelan (Cork, E.) asked whether attention had been called to the numerous fatal accidents occasioned by the incautious use of cheap oil lamps; and whether the Home Secretary would consider the advisability of taking steps to secure some system of inspection and registration of oil lamps for the protection of the public.—[Since when has the Hon. Captain been engaged to grind for the S.O. to dance?—ED. C. T. J.]

Sir M. W. Ridley (Blackpool).—I am fully alive to the importance of the question which is raised by the hon. member, and he will remember that it was one of the subjects which the Select Committee of last Session on petroleum was considering. That Committee has been reappointed.

THE PATENT LAWS.

Replying to Mr. O'Malley on Monday, Mr. Ritchie said the United States and the colonies, as well as Great Britain, issued letters patent for inventions without any stipulation that the articles should be manufactured in the country. The patent laws of this country, however, enabled the Board of Trade, where patentees did not manufacture in this country, to secure licences for such manufactures.

PETROLEUM FATALITIES.—The Manchester City coroner held an inquest on Monday touching the death of Elizabeth Ann Shufflebotham, aged 47, a widow, who had lived in Bullock's Buildings, Oldham-road. On the 4th of last month the woman, whilst under the influence of drink, was going up the stairs of her house with a lighted petroleum lamp in her hand, when she fell. The lamp broke and the oil set her clothes on fire. She was badly burnt, and died at the Royal Infirmary on Saturday. A verdict of accidental death was returned.—On Saturday night Sarah Spence, fifty years of age, living in Bakewell-street, Beswick, Manchester, was admitted as an in-patient at Ancoats Hospital suffering from severe burns. The woman was found lying on the floor of her house with her clothing in flames, and close beside her was a broken oil lamp. Death took place at the above-named institution on Monday.

MANCHESTER CHAMBER OF COMMERCE.

REPORT OF CHEMICAL SECTIONAL COMMITTEE.

SINCE the last annual meeting of the Chemical Section, held in January, 1896, the Executive and a sub-committee have met on four occasions. One of the first subjects which came before it for discussion was the question of Inland Navigation. There is a general feeling throughout the country that the British canal system might be of much more service to manufacturers and producers than it is at the present time. The mileage of navigable canals at present is made up as follows:—Independent canals, 2,506 miles; controlled by railways, 1,429 miles. Sir John Brunner addressed a letter in January to the President of the Board of Trade, urging that the then suggested legislation providing for the construction of light railways afforded an opportunity for furthering the interest of canals, and that a measure ought to be passed on somewhat similar lines enabling canals to be made and improved. In this letter Sir John Brunner complained that the information on which to base action, so far as canals are concerned, was very imperfect. A sub-section of the Railway and Canal Traffic Act, 1888, provides that the Board of Trade may require a return showing the capacity of any canal for traffic, and the capital, revenue, and expenditure and profits of the canal company annually, if desirable. Only one return has ever been published, viz., in 1890, and it was very incomplete. The support of the Chamber having been sought by Sir John Brunner, the question was remitted to this section, and a sub-committee was appointed for its consideration. The resolutions come to and subsequently adopted by the Executive and the Board of Directors were:—(1) That in the opinion of this Chamber existing inland canals are very inadequately utilised by the industries and commerce of this country, and that as a first step towards ascertaining the best methods of bringing them into fuller employment, and of thus greatly serving the interests of the whole country, it is necessary that ample information should be obtained from the Board of Trade under the Railway and Canal Traffic Act, 1888 (sec. 39, sub-sec. 2), as to the power of the Board of Trade to require an annual return showing the capacity of any canal for traffic, and the capital, revenue, and expenditure and profits of the Canal Company. (2) That a letter be addressed to the President of the Board of Trade asking for such return.

Representations were accordingly made to the President of the Board of Trade. Letters were also addressed to the Chambers of Commerce of Liverpool, Birmingham, Blackburn, Leeds, Bradford, Goolle, Walsall, Stoke, Bristol, London, Wolverhampton, Leicester, Oldham, Rochdale, Huddersfield, Halifax and Dewsbury, and the Cheshire Chamber of Agriculture, with a request that each of these bodies would as promptly as possible address a like request to the President of the Board of Trade, accompanied by a copy of the letter to the Department. Favourable replies have since been received from the Liverpool, Birmingham, Bradford, Halifax, and Leeds Chambers of Commerce. Other Chambers stated that the matter was under consideration.

Writing in November last, in reply to a further inquiry, the Department stated that the question of calling for a further return from the canal companies was still under consideration.

NIGHT USE OF THE TRAMWAY.

A cognate subject to the foregoing, and one perhaps of more pressing interest to the Manchester chemical and allied industries, is some arrangement by which cheap and expeditious access to the Manchester and Salford docks can be had. In some of the Continental cities—Vienna, for example—tramway lines are permitted to be used at night time between certain hours—say 12-0 midnight and 5-0 a.m.—for the conveyance of goods. The Manchester tramways seem to offer a means of solving the difficulty which exists, owing to the expense of carriage from the docks to the works in certain outlying portions of the city and borough, if only an arrangement could be made by some independent body or association which had acquired the right to undertake a night service of the kind indicated. With these views, your Executive appointed a deputation to visit the Blackpool, Lytham and St. Anne's Gas Motor Tramway with the object of informing themselves as to the best motive power for hauling merchandise. The deputation was accompanied by the Chairman and Vice-chairman of the Highways Committee of the Manchester Corporation, the Assistant City Engineer, and the Secretary of the Blackpool Tramways Company. The deputation reported that they had not been impressed with the adaptability of the new motor for the conveyance of goods, although, apparently it was very convenient for passenger traffic. Inquiries as to the cost also appeared to place it out of the question. The ordinary steam locomotive, somewhat reduced in size, afforded a more reliable, cheaper, and more self-contained method of propulsion. Your Committee was convinced that a system involving the night use of locomotives was eminently practicable, affording alike advantages to the Manchester Corporation, the Manchester Ship Canal Company, and traders generally. They relinquished the subject with the expression of the hope that the matter

would be taken up vigorously by a company or other body able to do it through as a commercial enterprise.

SMOKE PROSECUTIONS.

Your Executive has been much exercised recently by the policy, which it was hoped had been abandoned, by the M. Corporation, viz., the practice of harassing chemical producers for the emission, in excess of the narrow limits laid in the Corporation by-laws, of black smoke. It is well known position of chemical manufacturers, in respect of smoke produced widely removed from that of manufacturers engaged in the industries of this district who use steam to turn their machinery requirements, being regular, can be foreseen and provided permitting of the use of smoke-consuming appliances. On the other hand, the furnaces of chemical manufacturers play an entirely part in their industrial economy. They are less the agents for raising than the immediate implements by means of which the process is carried on, as, for example, in retort work, turnaces, and work of that class, in which higher and lower temperatures intermittently required. After full consideration and long discussion your Committee expressed the conviction that, where interference is necessary, it is impossible entirely to comply with the regulations of the Manchester Corporation. It will be remembered that these views were laid before the Corporation Sanitary Committee two years ago in an important deputation introduced by the Thewlis Johnson, then President of the Chamber. They appear far to convince the Sanitary Committee that for some length of time different methods were adopted.

The policy of harassing important industries when it is even no good ensues, the same manufacturers having been prosecuted, can have but one effect. It will be deeply prejudicial to the growth and encouragement of such industries, and will ultimately so far as Manchester is concerned, bring about their certain abandonment. For these reasons your Executive induced the Directors to address a letter to the Corporation setting forth the reasons and urging a change in their policy. At the moment of writing representations of the Chamber do not appear to have had any effect in altering the attitude of the Corporation.

The following replies from various Continental manufacturers show that no such stringency as chemical manufactures in Manchester have to complain of is experienced by their rivals on the Continent.

Basle.—Very vague municipal regulations exist, enjoining a nuisance to the neighbourhood is to be avoided.

Breslau.—No effective regulations against black smoke. Regulations of 1880 when put in force against manufacturers ineffective owing to the repeated acquittal of manufacturers.

Lidge.—The administrative authority confines itself to building permits clauses fixing the height of chimneys, and the employment of furnaces which will prevent nuisance to neighbours.

Reuen.—No municipal legislation, but proceedings for nuisance be taken by the complainant under the civil code.

SOCIETY OF CHEMICAL INDUSTRY.

NOTTINGHAM SECTION.

THE third meeting of the present session of this section was held at the Station Hotel, Burton-on-Trent, last week, when an average attendance. Amongst the Burton members present Dr. A. L. Stern, Messrs. Adrian Brown, A. Cartmell, J. H. W. E. R. Jackson, and J. O'Sullivan. Dr. F. Clowes and Mr. Wood (hon. sec.) represented the Nottingham members. Derby there were present, besides the chairman, Messrs. Herriott, and J. White (county analyst). The minutes of the meeting, which was held at Derby, were read by Mr. Wood. The chairman (Mr. Carulla) then said that before the discussion on "The Commercial Position of Sulphate of Ammonia" the first item on the agenda, he wished to congratulate the members on the occasion of holding their first meeting in Burton-on-Trent. The location of holding their first meeting in Burton-on-Trent were comfortably and conveniently located, but he might tell Burton seemed a great place for meetings, as most of the population in the town were found let for this date a month ago. Regarding sulphate of ammonia, he would say that it might be useless to suggest to the better employment of ammoniacal materials in the manufacture of some other product than sulphate. Those in the industry might easily find themselves in the position of fruit-growers who followed Mr. Gladstone's advice and sums in buildings and plant to make jam, so many going into business that they are now worse off than before. And yet no one will say that the advice was not good. What is of importance in the sulphate industry is that the farmer should understand the value of nitrogen, as such, in a manure, no matter how it may be produced. The Fertilisers and Feeding Stuffs Act, for instance, the unit of value has the same value, whether derived from nitrate of soda, from

ammonia, or from any other source. This action of the Government could be impressed upon the farmer.

Mr. J. O'Sullivan said that the authorities he had consulted concur in the equal value of the unit of nitrogen, whether derived from nitrate of soda or from sulphate of ammonia, and he thought that if this was correct that farmer was the wisest who availed himself of the variations in prices, for nitrogen was the cheapest. He would ask whether any experiments had been made such as those of Lawes and Gilbert to prove the equal value of the unit of nitrogen in the two manures in actual practice.

Dr. F. Clowes referred to the enormous expenditure incurred by the British ironmasters in adding ammonia absorbing plant to their blast furnaces. He knew that some English blast furnace owners had bowed suit, and others were also about to put down plant for this purpose. If the use of sulphate of ammonia seemed to be decreasing, he failed to see what benefit they could expect from such large expenditure.

Mr. John White said that what he felt to be a grievance was that wherever nitrate of soda supplants sulphate of ammonia we are losing the benefit of a home manufacture, as all nitrate is imported from abroad. In regard to the Fertilisers and Feeding Stuffs Act, to which reference had been made by the chairman, it was quite true that the unit of nitrogen had the same value no matter from whence derived, though going away a little from the subject, he would add that the Act was practically inoperative owing to the manner in which the sample had to be taken. What is wanted is the appointment of inspectors as has been done under the Food and Drugs Act.

Mr. J. O'Sullivan said it struck him that the great obstacle to the spread of the use of sulphate of ammonia was its name. Nitrate carries the idea of nitrogen to the ordinary man's mind, whereas sulphate does not. If it could be rechristened so that the name should convey this idea it might be a good thing.

The Chairman, in reply, said that experiments had actually been conducted over and over again in the sense indicated by Mr. O'Sullivan, with the result that the unit of nitrogen was found to be of equal value in the two manures, or practically so. Of course failures might occur with sulphate if ignorantly used and brought into contact with lime. He would have a caution printed on every page of all sulphate literature to prevent the occurrence of this. In regard to the question of English ironmasters having followed the Scottish ones, it should be remembered that in Scotland almost all the furnaces are worked with raw coal, whereas the English practice is, generally, to use coke. In this case the ammonia can only be recovered from the coke ovens. The English firms who are putting down recovery plant doubtless will also use raw coal, and they may have made their arrangements before the present depression, or hoping for an improvement in the near future.

Dr. Clowes thought it was desirable to point out that the reference to lime made by the chairman was to caustic lime, as all soils contained lime in combination.

The Chairman said this was so; it was only in the case of bringing lime in an uncombined form, or only hydrated into contact with sulphate of ammonia, that loss of ammonia occurred.

Mr. James O'Sullivan then read two notes, one on "Kjeldahl's process" for the estimation of nitrogen and the other on "Maltose," which were discussed by Dr. Clowes, Mr. White, Mr. Wood, Dr. Stern, Mr. Adrian Brown, and others. After a hearty vote of thanks had been passed to Mr. O'Sullivan for his valuable communications the proceedings terminated.

The next meeting of the section will be held in Nottingham on February 24th.

AN INTERESTING SUGAR PROSECUTION.

AT North London, last week, Mr. Bros again resumed the hearing of the summonses taken out by the Islington Vestry against local officers for selling as Demerara sugar an article which was but an imitation. (*C.T.J.* 506, p. 99.) The inquiry had been adjourned to enable Mr. Ford, who defended, to call expert evidence in proof that the article sold by the defendants, though not Demerara sugar, was a better and purer article, and consequently not "sold to the prejudice of the purchaser." Mr. Bramall prosecuted for the Vestry. Mr. Benjamin Howlands, a Fellow of the Chemical Society, a member of the Society of Public Analysts, and a consulting chemist in all matters concerning sugars, said he attended on subpoena and much against his will. The yellow crystals, he said, were tinted, whether made at home or abroad. Other less than half an ounce of colouring matter was used to colour a ton of beet crystals. The same colouring matter was used for butters, &c., and he should say it was not in any way injurious to health. He had tried it upon mice with no ill results. There were, on an average, 2,000 tons of these yellow crystals made in London every week, and he had never received any complaints. His investigations showed that there was 2 or 3 per cent. more actual sugar in the yellow crystals than in the Demerara. There was no doubt that the crystals were the better

sugars; but the fact of the Demerara being the dearer of the two was because there was a certain prejudice in favour of Demerara. He could tell the difference between the sugars by the sticky substance in the Demerara. The difference in the colour of the two sugars was very slight when both were thoroughly refined, the darker colour in Demerara being very often attributable to dirt. Mr. Edwin Lyle, whose firm trades in London and Greenock, said he had had thirty years' experience in all kinds of sugar. He bought his sugars by analysis. There were high and low qualities both of cane and beet sugars. The trade in yellow crystals was gradually on the increase. His firm also manufactured from the cane and beet, and his opinion was that the latter was immensely superior. This was his unbiased opinion, because the yellow crystals contained from 3 to 4 per cent. more sugar than the Demerara. In reply to Mr. Bros, Mr. Lyle agreed that the evidence of Mr. Quintin Hogg only proved that the yellow crystals were much cleaner than the Demerara. With regard to the imports of sugar, the Board of Trade returns for 1896 showed that of a total of 1,500,000 tons imported only 70,000 were from British West Indies (including Guiana and Demerara). The process of refining the sugars was much the same, but there were little trade secrets in the different refineries which they did not always care to divulge. Mr. Bramall: You are a careful man, Mr. Lyle. Mr. Lyle: I am a Scotchman. (Laughter.) He would answer one question, and that was that sugar was dyed for no other purpose than to please the public. Pure sugar might be all white. Mr. Bramall: You would naturally say your sugar is best? Mr. Lyle: No, I do not say it is better than Mr. Tait's. Mr. Bramall: But better than Mr. Hogg's? Mr. Lyle: Oh, yes, by a long way. (Laughter.) Mr. John Richardson, sugar buyer to Mr. James Budgett, said he had had 22 years' experience. So far as his knowledge went beet crystals were mostly used for jam making. Yellow crystals were now the dearer of the two on the market. At this point the case was again adjourned for a week.

ESPARTO IN 1896.

OFFICIAL returns of this growing industry prove of a highly interesting character, while the imports show a slight increase over those of 1895; the hopes entertained down to the middle of the year that the twelve months would sum up a total not far short of the early nineties were not far wrong. There has been an important expansion in the imports. Scotland has again increased her consumption by taking 112,658 tons, or 60 per cent. of the entire import to the United Kingdom, and of this quantity 56,412 tons were Spanish and 47,334 Algerian. The other descriptions scarcely held their own in the North. The distribution of supplies in England does not show any appreciable change from 1895. There has been a slight increase in the London and West of England districts, and a small reduction in the receipts at the Lancashire ports. Of the consumption generally it may be safely said that it has distinctly increased, for not only has there been little or no warehousing of unsold parcels, but manufacturers' stocks have seldom been such as to stand a prolonged strain. The activity in paper production during the past year has probably been unprecedented, machines have been running at their utmost speed, and the turn out of paper in many mills has been altogether a "record" one. Small wonder then that consumers of esparto kept a most vigilant eye on their contract deliveries, and that any falling off either in supply at shipping ports or in the means of transport was followed by anxiety and inconvenience to either buyer or seller, or perhaps both. As a rule, however, importers maintained their reputation both for regularity of delivery and quality of material. A fuller knowledge of the standard required by the British consumer, and a better organisation in selecting, sorting and baling, have done away with probably 95 per cent. of the disputes which formerly characterised the trade, and the arbitrations during the past year have been few and unimportant. The importation for the past twelve months were 187,298 tons; the previous year, 186,408 tons; and in 1894, 184,960 tons.

CARBORUNDUM PRODUCTION AND USE.—The Carborundum Co. reports that its works have produced during the year 1896, in round numbers, 1,191,000 lbs., or 595½ tons of crystalline carborundum. Consideration at the present is given to the production in crystalline form only, but another important industry, to which carbide of silicon promises to be a valuable adjunct, will naturally increase the usefulness of the material. Some mention has been made of the experiments showing that carborundum can be used, and will, in all probability, take the place of ferro-silicon in the manufacture of steel. Professor Luehrmann, of Germany, recently wrote an article on this subject, indicating that in the use of carborundum there will be in Germany alone, approximately, 2,500 tons consumed annually, provided its cost would not exceed 6c. per lb. It may be used for this purpose in an amorphous form, and the Carborundum Company is prepared to furnish it at a price slightly under this figure.

Legal Intelligence.

HIGH COURT OF JUSTICE. CHANCERY DIVISION.

(Before Mr. Justice North.)

BADISCHE ANILINE AND SODA FABRIK v. JOHNSON.

THIS was an action raising the question whether a Swiss manufacturer of an article protected by an English patent by the part he had taken in transactions which resulted in the importation into and use in this country of the article in question had made himself amenable to the jurisdiction of this Court. The defendants were Messrs. Johnson, dyers, of London, and a Swiss aniline dye manufacturer sued under his trade name, the Basle Chemical Works, Bindschedler. The plaintiffs are a foreign firm who own an English patent. They claimed an injunction to restrain the defendants from infringing their patent and damages. Messrs. Johnson had submitted to a judgment against them; the trial proceeded therefore against the foreign defendant only. The particular transaction on which the action was founded was the execution of an order for 5 lbs. of yellow dye for wool sent by Messrs. Johnson to the defendant Bindschedler in June last. The dye was sent by post to Messrs. Johnson and received by them. Bindschedler, in answer to the order, sent a letter dated June 11 to Messrs. Johnson enclosing an invoice in German of the goods ordered addressed to Messrs. Johnson, which was to the following effect:—"Bought of the Basle Chemical Works, Bindschedler. Terms 2½ per cent. discount, sent to Messrs. Niebergall and Goth, Basle to be held by them at your disposal, one packet containing 5 lbs. yellow T for wools at 3s. 3¼d. per pound, 16s. 6d." At the same time Bindschedler sent the packet of dye to Messrs. Niebergall and Goth, who are forwarding agents at Basle, with a document called a bought note, intimating that the goods were at the disposal of ("Zur Verfügung") Messrs. Johnson, and also having on it the words ("Zum Versandt per post") to be sent by post. Messrs. Niebergall and Goth at once despatched the packet by post, and it was duly delivered, and the charge for postage and Messrs. Niebergall and Goth's charge were collected by the postman from Messrs. Johnson. Messrs. Johnson had given no instructions to Messrs. Niebergall and Goth. The question was whether Bindschedler had infringed the English patent.

Mr. Fletcher Moulton, Q.C., Mr. W. W. Lawson, and Mr. J. C. Graham were for the plaintiffs. Mr. Upjohn (Mr. Bigham, Q.C. with him) for the defendant. Bindschedler contended that the sending by post of an article to England did not constitute an act of infringement in England of a patent covering the article. In the second place he contended that Messrs. Niebergall and Goth were not the agents of his client, but the agents of Messrs. Johnson, who had at any rate by paying their charge adopted them as agents, and further that an injunction would be futile.

Mr. Justice North, in delivering judgment, in the first place decided that a person who sent by post, to be delivered in this country, articles which could not lawfully be made or used in this country except under a patent, by so doing made himself a party to the infringement of the patent, and this was the view, as the evidence showed, of the defendant and his servants. He had then to consider, his Lordship said, whether by the device that had been adopted the defendant Bindschedler had freed himself from participation in the infringement in this country of the plaintiffs' English patent. In his Lordship's opinion Messrs. Niebergall and Goth never were the agents of Messrs. Johnson, but were Bindschedler's own agents. It was said that Messrs. Johnson had subsequently ratified an appointment of Messrs. Niebergall and Goth as their agents. Upon the facts he was of opinion that they had not, but even if they had this would not affect the breach of English law previously participated in by Bindschedler. It was also said that the granting of an injunction against a foreigner residing out of the jurisdiction would be inoperative. That might be the case. However, injunctions had been granted against foreign infringers of a trade-mark, and it had been found in practice that they were useful, and so it might be in this case. His Lordship, in the result, granted an injunction and ordered an inquiry as to damages occasioned by infringement of the plaintiffs' patent by the defendant Bindschedler in England.

FALL IN PARAFFIN WAX.—The Standard Oil Company of America has reduced the price of paraffin wax by ¼d. per lb., to apply to all markets—American and European. On the annual output of the Scotch trade this means a difference of about £50,000.

THE MANCHESTER CHEMICAL CLUB.—The annual conversazione and Cinderella in connection with this Club will take place on Friday, February 26th, 1897, in the Club Rooms, Victoria Hotel; dancing to commence at 7.30. During the evening various experiments will be shown, together with interesting exhibits. Tickets can be obtained from Mr. J. Carter Bell, The Cliff, Higher Broughton, Manchester.

LONDON CHAMBER OF COMMERCE.

Chemical Trade Section.—This section met last month, Mr. Tyrer (chairman) presiding. The Chairman reported that the Joint Committee of the section, and of the Society of Industry, and the Drug Club, on the Spirit Laws, had held a at which the whole subject was very fully discussed, and that committee had been appointed to formulate the requirements of manufacturers. Some further discussion took place with regard to adulteration of beeswax, when it was intimated that the subject had been very fully considered, and the new Pharmacopoeia would contain a much more reliable and satisfactory test as to the beeswax. The London Building Act, 1894, and the Fact Workshop Acts, 1878 to 1895, were referred to a special committee for consideration, in so far as they affected the chemical industry. Discussion took place in regard to the London Dock charges and chemicals, and Mr. Domeier was appointed representative section on the General Dock Charges Committee of the Chamber. The section was unanimously agreed to urge upon her Majesty's Government the desirability of taking steps to pass the Weights and Measures Bill during the ensuing Parliamentary Session.

Lamp Trade Section.—This Section met last month, Mr. Evered, (Chairman) presiding. The Secretary reported that the Council of the Chamber had agreed to raise the Lamp Sub-section the status of a Trade Section, its chairman having a seat on the Council. On the motion of Mr. Jack, seconded by Mr. Sale, Mr. R. B. was unanimously elected chairman of the Section and Mr. T. deputy-chairman. The Committee considered the desirability of evidence from the retail lamp trade being given before the Select Committee of the House of Commons on Petroleum and Lamps, in of its re-appointment, and it was agreed that Mr. Sale be nominated for that purpose. Mr. Sale stated his views with several of the points which had been raised, and these were found in accordance with those of the other members of the Section.

MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on at the offices in Mosley-street, Manchester, under the presidency of Mr. Alderman Thompson.

Mr. F. C. Hulton, clerk to the Committee, referred to the Mr. H. W. Johnston, the county auditor. Mr. Johnston, commenced his career in county business nearly forty years ago, was more than thirty-three years since he was appointed county clerk. This office he held up to the time of his death.

Mr. T. W. Killick submitted the report of the Consultative committee. In regard to the works of the Chadderton Urban Sanitary Authority it was stated that there had been delay on account of the contract. The matter was adjourned for a month. An adjournment for three months was granted to the Hayfield Rural Council, so that all works were stated to be nearly finished. Sir Henry reported that during the past month he had analysed nineteen of sewage effluents, of which fourteen were found to be good, and five fair. Sir Henry had also laid before the Sub-committee a report of the condition of seven samples of the effluent from the Corporation Sewage Farm, five of which were good effluents and two bad.

On the motion of Mr. Killick, it was agreed to send to the Corporation a copy of the analysis of the tank effluent from the Corporation sewage works. The following was the analysis of the effluent, 8.20 p.m., January 19, 1897. Fine weather. Oxygen absorbed—four hours test, 4.12 grains per gallon; three minutes test, 1.09. Ammonia—free and saline, 2.66; albuminoid, 0.46. Colour, 14.0. Brown and turbid, containing black suspended matter and sewage smell. That analysis, Mr. Killick said, showed the question to be very unsatisfactory. It was also agreed to send to the Corporation a report with reference to a sample of water taken from No. 1 dock of the Manchester Ship Canal, into which the Corporation discharges.

Sir Henry Roscoe wrote thanking the Committee for the report they had shown in re-appointing him as their chemical adviser, stating that he would serve the Committee to the best of his ability. Whenever it was thought desirable he would be glad to attend Committee meetings.

The Chief Inspector (Mr. R. A. Tatton) reported that on last snow was being tipped into the Irwell at Strangeways Water-street, causing a serious pollution of the river. Snow was being melted by artificial means, but the liquid which is of a very foul character, was being allowed to flow into the river. The Chairman said it was a very great shame, polluted stuff should be allowed to go into the Ship Canal.

tion of the Seavenging Committee should be drawn to the matter. —Mr. V. K. Armitage said he drew attention to the same question this time last year, and Mr. Alderman Thompson then promised that in future strict orders should be given to stop the practice. Dr. Hewitt thought that proceedings should be at once taken by the Joint Committee if the offence were repeated. The Chairman accepted that suggestion, and said that a year ago he took no responsibility in the matter, as Mr Armitage had suggested. The responsibility was with a committee of the Corporation of which he was not a member. Mr. Alderman Southern said that he was very anxious to prevent anything flowing into the river which would increase droiging operations in the canal but he did not quite see what the Cleansing Committee were to do after an excessive fall of snow other than to let the melted matter flow into the river. What he did suggest was that no refuse of a polluting character should be allowed to mingle with the snow. He did not know what the Cleansing Committee could do other than to place the snow in piles at convenient places, where, as it melted, it might flow into the sewers and streams. The snow had to be taken somewhere, and the only thing was to reduce the pollution as far as possible. The Chief Inspector said that the City Surveyor stopped the practice immediately representations were made to him. On the motion of Mr. Killick, it was agreed to forward the report of the Chief Inspector to the Corporation. This concluded the business of the meeting.

PETRIFITE.

UNDER this name a new cementitious compound has been introduced, which promises great things. It is intended to be used for the conversion of organic or inorganic matter, whether it be waste, wet or dry, pure or mixed, into a hard, durable mass, impervious to water, of great strength, and free from all atmospheric influences. Its composition is not stated, but it is in the form of a white powder, and it is claimed that, mixed with sand, it produces sandstone of different qualities; with sawdust, a body similar to hard wood, but incombustible; with slate waste, a material in many respects superior to the best slate; with marble dust, a beautiful marble of the same quality as the main blocks. Other products such as asbestos, oxide of iron, paper pulp, coal dust, etc., can be bound together into a solid mass. No furnace or hydraulic pressure is needed, and a hard and solid body, it is said, is formed within 24 hours. The applications of the cement in building, decorating, tiling, draining and other operations are described as practically endless. The great property of petrifite, it is claimed, is that it can bind substances hitherto incapable of binding. It adheres to iron with great tenacity. It is stated by an expert that an entire house may be built from the soil surrounding the site by mixing it with water and petrifite. For paving and road-making purposes it appears to have an important future. It is anticipated, besides the thousand-and-one uses to which this wonderful material adapts itself, that in the production of coal briquettes alone an immense business is sure to be developed. The proportion of petrifite required is so small—1 in 50—that the expense of it is inconsiderable, and the objectionable smell and smoke of pitch, of which from 5 to 10 per cent. is used in binding the ordinary briquette, is altogether obviated. The Petrifite Syndicate has gone to the highest authorities, whether Continental or British, for testimony as to the merits of their productions. Professor Bauschinger, of the Munich Laboratory, the leading Continental authority on Portland cement, states that the wearing quality of petrifite and sawdust is equal to the best granite and basalt.

THE LONDON INDIGO SALES.

THE first quarterly sale of the year commenced on Monday with a declaration of 5,850 chests, of which 402 chests have been withdrawn and not printed, leaving 5,448 chests to be brought forward, classified as follows:—Bengal 962 chests, Benares and Plant Oude 328 chests, Oude and Ghad 624 chests, Kurpah 1,680 chests, Madras, 361 chests, Bimlipatam 608 chests, Bombay hoody 285 chests, Bombay figs 367 chests, and sundries, 33 chests. There is a fair assortment of Bengal, mostly middling to good, and fine clean shipping. The Oudes and a few Benares are of useful qualities, the former showing strong in colour. Kurpahs, principally common to good, with a few fine. Madras all common to middling. No good. There are about 1,000 chests less Bengal and 1,000 chests less Kurpah than in October, but the bulk of the Bimlipatam crop is in, and includes some very useful qualities. The expectation expressed that the further full supply, as fixed in the latest crop estimates, coupled with the already heavy stock here, would tell upon values was confirmed by the course of the October sales, which resulted in a general breakdown of prices, entailing heavy losses to holders. Since October reports of "short moisture" for next year's crop have been persistently circulated with, it must be said, a

greater degree of justification than usual. The Calcutta sales now current have so far shown that planters are encouraged by the prospective scarcity to withhold their produce; while buyers, on the other hand, are reluctant to be guided by a cry which may prove fallacious by next September. As a result, we have a dragging sale, with prices on the whole below last season's average, but distinctly above October rates. Owing to the lateness in Calcutta, and the extreme firmness displayed by sellers for weeks, some American and Continental business was diverted to London, and that market hardened 2d. to 3d. above October rates, but afterwards became quiet. Locally business has been dull and inactive, through the depression in the cotton trade. With so important a factor as Indian exchange in buyers' favour, and the surplus stock in London (about 11,000 chests), the largest for many years, and the invisible stock, which is also large, to be added to the crop now being marketed, it is clear a low range of prices over 189' would be probable but for the partial failure of the monsoon, which will undoubtedly affect the crop of first cuttings, though to what extent time alone will show.

The sales opened with a good attendance of home, and but few Continental buyers. Importers gave strong support by very large withdrawals. The moderate quantity sold realised an advance all round, Bengals ranging from 2d. to 3d. advance, Oudes, 2d. to 3d., Kurpahs 3d., and Madras 2d. higher. Figs: None sold. Sold, 602 chests; bought in, 159 chests; withdrawn, 2,215 chests; passed, 2,796 chests; leaving 3,054 chests still to pass the sales.

Selected Correspondence.

FOREIGN COMPETITION AND PATENTS.

(To the Editor of the Times.)

Sir,—In your leader on the report of my late colleagues on technical progress in Germany, you refer to the fact that the production of dyes from coal-tar, in which we have been so completely distanced by Germans, was originated by Dr. Perkins, and, it might have been added, by Dr. Hoffman, in this country.

It is not generally known that we lost this manufacture because the trade in England was shut up for 14 years by a "master patent," whilst no controlling patent had been sanctioned in Germany, so that anyone could take up the manufacture there; the result being, of course, development abroad in place of stagnation at home.

At the present time we, in this country, are handicapped as much as before, but from an opposition of things. The Germans having taken the lead, with their acquired experience and large capital, keep it by patenting their new processes in this country, but carry out their manufacture abroad. So long as they keep our market supplied, which they take care to do, nobody is at liberty to make the patented articles here.

I believe ours is the only country in which it is not a condition of every patent that the invention shall be exercised within the realm.

Surely it is "free trade run mad" to allow the foreigner to prevent a process from being carried out in this country by our people if he does not choose to come and do so himself.—Yours, &c., B. SAMUELSON.

DESTRUCTIVE FIRE AT NEWPORT.—The South Wales Brattice-cloth and India-rubber Works, at Newport (Mon.) were almost destroyed by fire on Saturday night. Fortunately, the works were isolated, and the fire was therefore confined to the building originally attacked. A quantity of manufactured stock was saved, but the valuable machinery and other plant was destroyed.

LIVERPOOL DUES ON SALT AND LEAD.—From the minutes of the proceedings of the Charges of the Port Committee of the Liverpool Chamber of Commerce, the principal subject which had occupied the attention of that Committee appeared to have been the question of the reduction of the dock dues on salt, tinplates, lead, &c., for which the chamber had pressed (C.T.J. 499, p. 373). The Dock Board had since replied to the Chamber's request that these dues should be reduced, saying that at present they are unable to make any further reduction in their dock rates and town dues. Mr. Cox, in moving the adoption of the minutes, said he should like to mention the disappointment of the committee on receipt of the refusal of the Dock Board to entertain the proposal for a reduction on these articles. It was felt that the matter was deserving of consideration. Liverpool was losing trade in all these articles, and they were of great importance to the shipowners of the port in providing a considerable dead weight for ships. He thought it was the opinion of a great many outside the Board that many economies might be made in the administration, which would enable them to make further reductions in the dues.

Trade Notes.

THE NEW CONVEYOR CO., LTD.—This firm has been entrusted by the Corporation of Batley with the contract for a new retort house, with a complete installation of inclined retorts and automatic coal and coke handling plant, also the contract for a coal sizing and cleaning plant to be sent out to Cape Colony.

CHEMICAL VAPOURS AND CROPS.—At the Northwich County Court on Wednesday, after five days' hearing, Judge Wynne Ffoulkes awarded to Henry Warburton, farmer, of Lostock Gralam, near Northwich, damages amounting to £47. against the Davis's Chlorine Processes, Ltd., for injuring ten acres of oats by the emission of noxious gases.

DEPRESSION IN THE SALT TRADE.—The salt trade is once more very depressed, and the returns issued on Thursday show that during January there was a falling off in the Mersey shipments of 4,500 tons as compared with the corresponding month of last year. There has been an increase of 300 tons from Runcorn and the Ship Canal. At the commencement of the month the Calcutta trade improved, and a great revival was anticipated. The depression is partly due to the increase in freightage rates and foreign competition.

"TRADE AND INDUSTRY."—Under this title a new monthly paper has made its appearance. It certainly promises well, being a splendid typographical production. The policy of the journal is very clearly defined, and in one important matter a very strong attitude has been adopted—that relating to foreign competition, a subject which is at the present moment attracting a vast amount of attention. *Trade and Industry* is a vigorous supporter of goods "made in England," and on that account claims the support of British manufacturers and exporters.

A VEGETABLE WOOL SCOUR.—A patent scour has been brought out by Messrs. W. Cawood & Sons, of Sculcoates Hall, which is free from alkali. It has been on trial by wool scourers, and has given very satisfactory results. It cleanses without attacking the natural fibre. The advantages claimed are namely, that it gives brighter and more even colours in dyeing, and the odour of the wool after scouring is the natural odour of the sheep. After scouring, it leaves a soft, silky, glossy wool, free from any harshness, which does not "cast" upon exposure to the light. One gallon of scour is added to 100 gallons of water, heated to 120° F. Soft water must be used. The succeeding bath is a plain soap bath, with about half the usual amount of soap. The other baths used are simply rinsing baths of soft water.

SERIOUS BOILER EXPLOSION.—On Monday evening a boiler at the engineering works of Messrs. J. Mountford and Co., Bradford, exploded. The cause of the explosion is a mystery. The building, which was a large one, and adjoins the extensive chemical works of Messrs. Tennants and Co., is wrecked and completely demolished, bricks, portions of machinery, shafting, &c., having been blown a considerable distance. The boiler is shattered, one portion having been carried by the force a distance of 500 yards, and is embedded in the ground on some vacant land. Another piece has demolished a portion of a thick wall round the tar works of Messrs. Hardman and Co., and a piece weighing fully 3 cwt. was lifted completely over the vitriol chambers of Messrs. Tennants' works. Fortunately no one seems to have been injured, but had the explosion happened two hours earlier the loss of life would have been very serious.

RAILWAY RATES.—An address will be delivered by Mr. Balfour Browne, Q.C., before the London Chamber of Commerce on the "Railway and Canal Traffic Acts," on Wednesday, February 10th, at 3 p.m. We understand that this paper will prove to be of special importance, as it will summarise the action taken both by Parliament and traders in regard to this question since 1854, and will probably conclude with some recommendation as to further steps which are advisable at this juncture to place the English carrying trade on a satisfactory footing. The entire question of railway carriage, particularly in view of the competition of foreign countries and of State owned railways, is one of the highest importance to British Trade, and the delivery of this paper presents a favourable opportunity for the consideration of the entire question.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are scarce, and seem to have got the better of their recent tendency to decline in value, prices now being steady at 3s. 6d. for 90's and 2s. 11d. for 50/90's. Carbolic acids are firm, 60% crude having advanced to 2s. 2d. and 45% crystals to 7¼d. Liquid carbolic is still quoted 10d., but is dull. Naphthas remain steady at 1s. 1d. for crude and 1s. 8d. for solvent, the latter being scarce. Anthracene is quiet

at 8½d. for 30% A, and 7d. to 7½d. for B. Grease oils, &c., at works. Creosote unaltered. Pitch is in a poor way, stocks are low; 23s. 6d. to 24s., f.o.b. East Coast is about the value.

Sulphate of ammonia is disappointing, prices having fallen, market showing signs of unhealthiness, both in the prompt and sections. London outside makes are now offered at £7. 17s. 6d.; Liverpool, £7. 17s. 6d.; Hull, £7. 16s. 3d.; Leith, £7. 15s. Beckton quotes £7. 17s. 6d. 1 August, but the forward market is for the most part neglected.

REPORT ON MANURE MATERIAL.

The severe weather of the past weeks has been all against agricultural operations, and, consequently, against extensive purchasing. Manufacturers and dealers will want to see promise of better before they cover their further requirements, and in the meantime market for material is quiet all round. The quotations for phosphates are unchanged, and there is no special business for the United Kingdom, though there is buying going on in the Continent. River Plate bones are unchanged, and there is no report in these or in crushed East Indian. Bombay bone meal of sale, and the nearest value is probably £3 15s per ton, on afloat. Nitrate of soda is quiet but firm on spot at 8s. 1½d. for good up to 8s. 3d. per cwt. for fine quality. There is less cargo, but quotations are unchanged. Deliveries on the Continent are being seriously hampered by difficulty in water transit.

MISCELLANEOUS CHEMICAL MARKETS.

In the alkali trade the market is steady for most of the products. Demand for export continues good, and prices changed. Ammonia alkali, 58%, £3. 7s. 6d., nett, bags, f.o.r. works for the home trade, but there is no improvement upon prices taken for export. Caustic soda is steady in price, with demand, and there is no change in current quotations, which follows:—F.o.b. Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 60%, £6. 2s. 6d. per ton, nett, 10-ton lots and a Bleaching powder is in good request, and price is firm for woods, f.o.b., at £6. 15s. per ton, and softwoods, f.o.r., 1 per ton. Prices of chlorates are unaltered, at 4¼d. for potash 5d. per lb. for soda, but lower prices are taken for delivery. For soda crystals and bicarbonate prices are maintained. There is good inquiry for recovered sulphur, 12s. 6d., f.o.r., in bulk. Saltcake steady, at 19s. to 20s., f.o.b. vitriol and muriatic acids there is a fair demand at full rates. Sulfate of copper still in active market, at £19 15s. to £20 f.o.b., for Feb-April delivery. Leblanc soda ash 1d. to 1¼d. per degree for ordinary refined qualities. Demand for potash, caustic and carbonate continues brisk, stocks are small. White powdered arsenic is again firmer, with further curtailment of output, and nearest spot value is £24. Brown acetate of lime is firm, but without change during the year. 5s. ex store and £4. 15s. c.i.f. Acetate of soda steady at ship. White and brown sugar of lead rather quieter, but change in price. Yellow prussiate of potash firmer at 5¼d. 11d. per lb. Sulphocyanides dull. Oxalic acid steady at 3s. 3½d. to 3½d., according to quantity. Nitrate of soda the advance; spot parcels realize 8s. 3d. per cwt., f.o.r. Carb crystals rather firmer, and scarce at 7¼d. to 7½d. for 39/40% oil and salt have also a higher tendency, and there is good Alum and sulphate of alumina continue to be offered at low prices for prompt and forward delivery. Green copperas is in active request for the home and export trade. Superphosphates are without improvement in value, but makers are busy as usual at this period. Ammonia generally, quiet, and in muriate there is a continued tendency to lower prices, £18. 10s. to £19. being about the value at usual delivery. Sundry chemicals are without any special change, demand generally is reported quiet from all quarters.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants 47s. 8½d., Middlesbrough 41s. cash, and hematite 50s. Copper, firm: Chili bars, G. O. B.'s and G. M. B.'s at £51. 3s. 9d. to £51. 8s. 9d. cash, and £51. 10s. to £51. 12s. three months. Tin, active: Straits closed at £61. 15s. cash, and £61. 17s. 6d. to £62. 7s. 6d. three months. Australian, £62. 15s.; English ingots, £65. 10s. to £66. Spanish, £11. 17s. 6d.; English, £12. Silesian spelter, 4

18. 2s. 6d. Nickel, 1s. 2½d. Antimony, £31. to £31. 6d. Silver: First hands, £6. 17s. 6d.; second hands, 6d. Copper shares, steady: Cape, 2½ to 2½; Copiapo, ¼; Libiola, 2½ to 2½; Mason and Barry, 2½ to 2½; 27½ to 28; Tharsis, 6½ to 7.
TOW, WEDNESDAY.—Market steady, with a good business. One at 47s. 9d., 47s. 9½d., 47s. 8d., and 47s. 9d. cash; s., 47s. 10½d., and 47s. 11d. one month; buyers, 47s. 8½d. ers, 47s. 9d. Cleveland done at 41s. cash, and 41s. 2½d. ½d. one month; buyers, 41s. cash. Cumberland hematite 50s. 9d. cash, and 51s. to 50s. 11d. one month; buyers, 50s. cash; sellers, 50s. 9½d. Middlesbrough hematite done 1. one month; buyers, 50s. cash.

L PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

Possibly the question of most interest here just now is the of a dividend of 2 per cent. by the Hull and Barnsley Railway after a struggle of eleven years; it will be remembered railway was constructed to break down the monopoly here. of seed in Hull are:—Linseed, 59,992 qrs., against the 59,136; rapeseed, 789 qrs., against 4,843 qrs.; cottonseed, against 370 tons. The imports of seed into Hull for the ve been: Linseed, 52,965 qrs., against December 132,014 seed, 6,532 qrs., against 20,790 qrs.; cottonseed, 19,773 st 33,117 tons. Linseed oil remains dull; spot 13s. 10½d. ward February-April, 14s. 3d.; May-August, 15s., rather fined and boiled, £1 to £1 10s. per ton extra. Cotton ed is fairly steady at 12s. 10½d. per cwt. spot naked; for- uary-April done 13s. 1½d.; May-August, 13s. 10½d. filtered oil is quoted from 15s. to £1 per ton extra, accord- ke; casks £1 and ordinary barrels £1. 10s. per ton extra. e, 21s. 9d. per cwt. Olive oil unchanged. Castor oil very en olive oil soaps (Italian), 60% fatty acids, £16 per ton ; pale distilled oleines, £17. 15s.; saponified, £18. 15s.; listilled, £20. per ton. Yorkshire grease, £8. to £9 per igh butter unchanged.

The market continues favourable for stimulating the e feeding stuffs. Linseed cakes are quiet but firm; 95% pure, d. Oilcakes, £5. 12s. 6d. Cotton cakes a dull trade, but ain steady; best makes, £4.; seconds, £3. 17s. 6d. Rape t; Black Sea, £3. 5s.

S.—For the time of year manufacturers may be considered nderers are much competed for. Prices experience but little

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

Palm oil is still slow of sale, there being only a small report at £21. 5s. per ton on spot. Olive keeps well on the the better, with an improved demand. Seville has been 29. to £29. 10s. per tun. Linseed still keeps very quiet, but so as been no change in prices, 16s. to 17s. 6d. per cwt. still current value for Liverpool makes in export casks. Cotton- ch about the same. The demand is moderate, with prices at 15s. 6d. to 16s. 3d. per cwt. Castor oil continues as firm Good seconds Calcutta stand at 3d. per lb. First pressure 2¾d. per lb. Tallow is unaltered, and calls for no special Resin is in moderate demand, on spot, but prices remain as l. Though there is no change in the price of spirits of turpen- re decidedly steady at 21s. per cwt., with a fair amount of assing. Petroleum is very quiet, and prices nominal. figures at 6¾d. to 7¾d., and Russian refined 5¾d. per gallon. URS.—Prices are steady, and practically without change. Oxfordshire, common, £10., medium, £12., best, £15, s, common, 40s.; medium, 50s., best, 60s.; Welsh, best, nds, 50s., and common, 18s.; Irish, Devonshire, 40s. to ch, J.C., 65s. Umber: 40s. to 45s. White lead, £16. unchanged. Venetian red, £6. to £10. Cobalt: Pre- le, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, um, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemical trade is practically unaltered, and does not yet show tion. There is, however, some prospect of the labour ing satisfactorily settled. Soda crystals are quoted at £2. er ton, gross weight, locally. Caustic, 76/77%, £9.; and 10s. to £7. 15s. per ton. Sulphur still scarce, at £5.

Bleaching powder, softs, £6. 15s. per ton, nett; hards, £7. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt steady, at 9s. 6d. per ton, f.o.b. Tees.

COALS.—Trade continues steady, and with a fuller arrival of steamers there is a good demand for steam and bunker coals. Business in coke is very firm, and consumption, export and home, is on the increase. Prices to-day:—Best Northumbrian steam, 8s. to 8s. 3d. per ton; second qualities, 7s. to 7s. 3d. per ton; small steam, 3s. 3d. to 3s. 6d. per ton. Gas coals firm at 7s. 3d. to 8s. per ton. Bunker coals, 6s. 9d. to 7s. 3d. per ton. Household coals, 10s. to 11s. per ton. Coke in demand, at 15s. to 16s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The market for sulphate of ammonia is deadlier than ever, and if the price has not gone down disastrously it is because the makers prefer to hold on, selling little or nothing, to see what the opening of the year and milder weather will do for them. It is down to £7. 15s. prompt, but hardly anything passing at that, buyers being very cool over the matter. There is nothing on report for forward. In general chemicals there is no improvement as yet, and, with one or two exceptions, the old quotations show signs of weakness only. Sulphate of copper is the contrast, being extra strong and rising in price. In the mineral oil and paraffin section prices remain as before. Report has it that the Standard Company of America have reduced solid paraffin prices by one farthing a pound all round, but this lacks confirmation. It will have serious effects if true, the present prices being already barely remunerative to the Scottish refiners.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/52°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d.; 70/72° £7. 2s. 6d.; 60/62° £6. 2s. 6d.; and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 20s.; borax, English, refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4¼d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 4½d.; sulphate of ammonia, £7. 15s. prompt, f.o.b. Leith; sal ammoniac, first and second white, £35. and £33 nett, any port; sulphate of copper, £19. 10s., less 5%, Liverpool; paraffin scale, hard, 1¾d. to 1¾d., and soft, 1½d. to 1¾d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2¼d. per lb.; paraffin spirit (naphtha), 7½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were nil.

New Companies.

Pulp Manufacturing Syndicate, Ltd.—CAPITAL, £100. in £1 shares. This company has been formed to manufacture and deal in paper pulp, asbestos, and other fibrous materials.

Phenozone Soap Company, Ltd.—CAPITAL, £5,000. in £1 shares, of which 100 are founder's shares. This Company has been formed to manufacture and sell the soap named in the title. The Registered Office is 660, Fulham Road, Fulham, S.W.

Gale and Friend, Ltd.—CAPITAL, £10,000., in shares of £1. each. This company has been formed to carry on the business of paint manufacturers, of the late F. Friend. The subscribers to the memorandum of association are:—T. Greenline, 124, Haverstock Hill, N.W., clerk; B. Mellor, 62, Parliament Hill-road, N.W., gentlemen; J. L. Worsfold, 11, Bell's Buildings, E.C., publisher; T. Field, 11, Bell's Buildings, E.C., publisher; A. P. Friend, Ouseley House, Erith, engineer; J. T. Mould, 64, Queen Victoria-street, E.C., engineer; V. Thomasset, 37, Walbrook, E.C., solicitor.

Newfoundland Wood Pulp Co., Ltd.—CAPITAL, £16,000., in shares of £1. each. This company has been formed to adopt an agreement with Messrs. Harvey, Bradshaw, and Prowse, and to manufacture and deal in mechanical and chemical pulp, and other papermaking materials. The subscribers to the memorandum of association are:—E. H. G. Steinhoff, Whitehall-road, Woodford Wells, merchant; H. J. Gersitsen, Swiss Cottage, Loughton, merchant; W. G. Meddle, Buckhurst Hill, solicitor; T. S. Perkins, 14, Church-lane, Whitechapel, merchant; E. Wendover, C.E., Glebe-avenue, Enfield; W. Tudor, Buckhurst Hill, merchant; R. W. Muir, Whitehall-road, Woodford, merchant.

Robert Fielden and Sons, Ltd.—CAPITAL, £75,000., in shares of £10. each. This company has been formed to acquire the business of tanners, etc., now carried on at Walsden, Lancashire. The subscribers to the memorandum of association are:—R. Fielden, Inchfield, Walsden, Lancashire, pickermaker; S. Fielden, Waterside House, Todmorden, pickermaker; J. W. H. Fielden, Birks House, Walsden, Lancashire, pickermaker; R. T. Fielden, Inchfield Villa, Walsden, Lancashire, pickermaker; J. Fielden, Inchfield Villa Walsden, Lancashire, pickermaker; Miss H. Fielden, Inchfield Villa Walsden, Lancashire; Mrs. S. Fielden, Waterside House, Todmorden.

Non-Inflammable Wood Syndicate, Ltd.—CAPITAL, £50,000., in shares of £50. each. This company has been formed to present otherwise treat wood to render it fire-proof. The subscribers memorandum of association are:—E. M. Fox, 34, Victoria-street, gentleman; E. L. Clapson, 21, Elverson-road, St. John's, S.E.; A. J. Greenop, 15, Victoria-street, S.W., solicitor; E. Green Quality Court, Chancery-lane, W.C., architect; I. Marchant wood, New Barnet, gentleman; W. J. Cundell, 28, Victoria S.W., merchant; P. J. D. Lindoe, 28, Victoria-street, S.W., gentleman.

Sulphides Reduction (New Process) Ltd.—CAPITAL, £10,000., in shares of £1. each. This Company has been formed to treat sulphide ores, &c. by a patent process, and to acquire the business of the Sulphides Syndicate, Ltd. The subscribers to the memorandum of association are:—W. Hill, 43, Brailsford-road, S.W., accountant; W. Russell, 48, Harringay-road, West Green-road, N., clerk; Bennet, 18, Upham Park-road, Chiswick, W., clerk; G. A. W. 26, Bedford-road, South Tottenham, clerk; D. Macvean, Broad House, E.C., gentleman; D. H. Wilson, 36, Broad-street, E.C., merchant; A. Kimber, 3, Roland Gardens, S.W., gentleman.

Gazette Notices.

PARTNERSHIP DISSOLVED.

T. SYKES and W. SYKES, dyers and soap manufacturers, under the name of James Walker Sykes and Sons, Huddersfield, and as Sykes, Sons, Meltham.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

W. HUTCHINSON, late Leeds, now Stalybridge, late soap merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 23rd.

Acetate of Lime—		
U. States, 200 bgs.	J. R. Francis & Co.	
Acetic Acid—		
Holland, 52 pks.	Little & Johnston	
Alkali—		
France, 50 c.	J. Barber & Co.	
Alum—		
Holland, 460 pks.	Ohlenschläger Bros.	
Ammonium Chloride—		
Holland, 14 cks.	H. Lorenz	
Antimony—		
Japan, 2 cs.	J. Dewar & Sons, Ltd.	
Antimony Ore—		
Australia, 9 t.	H. Grey, jun.	
Arsenic—		
Melbourne, 50 cks.	Grimwade, Ridley & Co.	
Asbestos—		
U. States, £60	W. Byford	
Germany, 56	Craven & Co.	
Italy, 89	Imperial Asbestos Co.	
France, 65	Mory & Co.	
Barium Chlorate—		
Germany, 22 cks.	Petri Bros.	
Barytes—		
Holland, 44 cks.	Taylor Bros.	
Germany, 97	W. Harrison & Co.	
Holland, 184	O'Hara & Hoar	
Bromide of Iron—		
Germany, 5 cks	A. & M. Zimmermann	
Bromine—		
Germany, 70 cs.	A. & M. Zimmermann	
Camphor—		
Germany, 69 tubs	Lewis & Peat	
" 68 100 cs.	City Coml. Whf.	
" 65 214	S. Figgis & Co.	
" 202	R. Warner & Co.	
Hong Kong, 158		
China, 99	T. Merry & Son	
Caoutchouc—		
France, 1 c.	Mory & Co.	
Penang, 451	E. Boustead & Co.	
" 94	Butler's Whf., Ltd.	
Germany, 18	Lewis & Peat	
" "	Wallace Bros.	

" 20	E. Schlüter & Co.	
" 7	Anderson, Weber & Co.	
Zanzibar, 2	Clarke & Smith	
Belgium, 4	Société John Cockerill	
Germany, 49	T. H. Lee	
" 6	S. Figgis & Co.	
Zanzibar, 92	L. & I. D. Jt. Co.	
" 12	Forbes, Forbes & Co.	
Madagascar, 12	Blythe, Greene & Co.	
Ceylon, 13	Prop. Hay's Wf.	
E. Indies, 100	Lewis & Peat	
Madagascar, 8	L. & I. D. Jt. Co.	
Thursday Is., 2	McIlwraith & Co.	
Germany, 200	Fellowes, Morton & Co.	
Zanzibar, 25	S. Figgis & Co.	
Madagascar, 133	Prop. Bull Wf.	
Singapore, 133	L. & I. D. Jt. Co.	
Carbolic Acid—		
Germany, 200 pks.	J. G. Back	
Castor Oil—		
Italy, 3 cs.	G. S. N. Co.	
Caustic Potash—		
France, 200 c.	R. Waters	
Chemicals (otherwise undescribed)		
Brisbane, £240	L. & I. D. Jt. Co.	
Holland, 15	H. Lorenz	
Germany, 70	Petri Bros.	
" 414	H. Lambert	
Belgium, 6	Phillipps & Graves	
Germany, 30	O. Scholzig	
Norway, 115	L. & I. D. Jt. Co.	
Holland, 19	W. Caudery & Co.	
" 45	J. Barber & Co.	
Denmark, 12	Hernu, Peron & Co.	
Holland, 50	Bailey & Leatham	
France, 27	T. H. Lee	
Belgium, 517	C. Atkins & Nisbet	
Holland, 43	Société John Cockerill	
Germany, 10	A. & M. Zimmermann	
" 1,065	T. H. Lee	
" "	A. & M. Zimmermann	
Citrate of Lime—		
Italy, 21 cks.	B. Jacob & Sons	
Cobalt Ore—		
Australia, 22 t.	R. Waters	
Cream of Tartar—		
Holland, 16 cks.	Kirkpatrick & Co.	
Italy, 2	W. C. Bacon & Co.	
France, 10	"	

" 4	C. Atkins & Nisbet	
" 10	B. & F. Wf. Co.	
Spain, 5	"	
Dextrine—		
Germany, 105 bgs.	M. D. Co.	
Dyestuffs—		
Argols		
Italy, 14 cks.	Thames S. T. & L. Co., Ltd.	
" 779 bgs.	B. Jacob & Sons	
Cochineal		
Canaries, 40 bgs.	Swanston & Co.	
" 5	J. W. Borland	
Cutch		
Penang, 550 bxs.	Williams, Torrey & Co.	
Extracts		
U. States, 20 kgs.	Williams, Torrey & Co.	
Denmark, 2 cks.	M. D. Co.	
France, 240	B. & F. Wf. Co.	
" 800 bxs.	T. H. Lee	
" 85	L. J. Levinstein & Sons	
Germany, 5	200 bgs. T. H. Lee	
Gambler		
Singapore, 232 bls.	J. E. Scott	
" 507	Brown & Elmslie	
" 179 bgs.	Beresford & Co.	
Indigo		
E. Indies, 3 cts.	Binny & Co.	
" 13	Hoare, Miller & Co.	
" 4	Ernsthausen & Co.	
" 47	L. & I. D. Jt. Co.	
" 29	Elkan & Co.	
" 342	A. B. Curtis & Co.	
" 14	Parsons & Keith	
" 9	Lyall, Anderson & Co.	
" 121	L. & I. D. Jt. Co.	
" 25	P. MacLaden & Co.	
" 52	Walker, Munie & Co.	
" 6	Herrmann & Co.	
" 27	Carey & Sons	
" 51	J. Hatton Hall & Co.	
" 50	Parsons & Keith	
" 26	E. Bower & Co.	
" 55	T. Barlow & Bro.	
" 22	P. & O. Co.	
" 7	R. von Glehn & Sons	
" 17	Dipnall & Co.	

Belgium, 2 cs.	Société John	
E. Indies, 35	H. W. J.	
Madder		
Germany, 1 ck.	H. Wall	
Myrabolams		
E. Indies, 220 bgs.	Dalton	
" 1,218	Hoare, Wf.	
" 1,123	"	
" 670	Marshall J.	
" 670	L. & I. D.	
" 670	Dan	
Shumac		
Italy, 1,000	Beresford	
Tanners' Bark		
San Francisco, 6 t.	Unio	
Natal, 49	A. & W.	
Turmeric		
E. Indies, 55 bgs.	Lucas & S.	
Farina—		
Germany, 350 bgs.	Oblenschläger	
Holland, 100	J. Barb	
Singapore, 100	H.	
Belgium, 50	Dunlop B.	
Glucose—		
U. States, 450 pks.	2,571 c. R.	
Holland, 25	130	
U. States, 400	400 Ohlen	
" 550	1,000 L.	
" 1,000	2,000 K.	
Glue—		
Italy, £105		
Canada, 33	L. & I. D.	
France, 250	T. M. Duché	
Italy, 10	Preps. Dow	
France, 334	J. J.	
Holland, 92	G. Rab	
" 8	H. Johnson	
Germany, 22	H.	
" 38	L. & I. D.	
" 49	Herrmann	
" 800	J. Barb	
Belgium, 472		
Holland, 52	Carey	
Belgium, 200	Lea	

Sorior Barth—
bourne, 6324 L. & N. W. Rly.
Black—
states, 30 brls. L. & N. D. Jr. Co.
gum, 100 M. Ashby, Ltd.
ates, 10 cks. H. Keller & Co.
80 hds. J. Melvin
Large—
land, 15 cks. Spies Bros. & Co.
many, 8 J. Knill & Co.
ure—
ndies, 200 f. Fox, Roy, & Co.
95 F. W. Berk & Co., Ltd.
650 A. Hunter & Co.
200 F. A. Hodgkinson
Perkins & Homer
Anglo-Contl. G. Wks.
A. Boake, Roberts, & Co.
Allic Oxide—
many, 2 cks. Brit. Anti-Fouling
Compo Co.
hyl Alcohol—
many, 18 dms. Lister & Biggs
7 Sutton, Carden, & Co.
den, 10 cks. Lister & Biggs
nce, 20 W. Barber
ndies, 680 Arbuthnot, Latham,
& Co.
lon, 50 W. M. Smith & Sons
ndies, 1,945 E. Davis & Co.
asses—
States, 150 cks. 825 c. L. & I. D.
Jt. Co.
hthol—
land, 3 cks. Philipps & Graves
8—
li, qty. R. E. Drummond
ce—
nce, 41 cks. Ellam, Jones,
& Co.
land, 29 Philipps & Graves
ic Acid—
land, 40 pks. R. W. Greeff & Co.
phate Rock—
gum, 25 t. J. Gibbs & Co.
150 Schofield, White, & Co.
nce, 250 W. E. Cole
abago—
dies, 93 cks. R. G. Hall & Co.
many, 38 T. H. Lee
9 Burrell & Co.
dies, 85 Doultou & Co.
ssium Carbonate—
many, 20 c. Petri Bros.
nce, 70 J. A. Reid
ssium Chloride—
many, 250 bgs. Bessler, Waechter,
& Co.
land, 30 cks. H. Johnson & Sons
ssium Sulphate—
many, 50 bgs. Bessler, Waechter,
& Co.
250 D. de Pass & Co.
ssilver—
in, 32 brls. H. J. Enthoven
& Son
in—
nce, 20 brls. J. Watt & Son
gum, 25 bgs. Leach & Co.
many, 26 L. & I. D. Jr. Co.
petre—
many, 20 cks. J. Hall & Son
ndies, 3,266 bgs. Lucas & Spencer's
Wf.
C. Wintle & Co.
Perkins & Homer
land, 3,920 c. R. Waters
gum, 5116
um Acetate—
land, 40 cks. H. Lorenz
um Hyposulphite—
land, 450 c. R. W. Greeff & Co.
um Sulphate—
many, 265 pks. Deering &
Robottom
ob—
land, 760 cks. Little & Johnston
States, 200 bgs. R. G. Hall & Co.
land, 119 cks. T. H. Lee
States, 20 bgs. L. & I. D. Jr. Co.
many, 350 cks. Seaward Bros.
land, 120 Philipps & Graves
gum, 20 Leach & Co.
89 T. H. Lee
land, 10 J. Barber & Co.

Germany, 710 Horne & Co.
France, 40 J. Barber & Co.
Belgium, 300 E. & T. Pink
290 F. Claydon & Co.
Germany, 6 cks. T. H. Lee
France, 50 cs. Hernu, Peron, & Co.
Stearine—
Turkey, 63 bgs. H. Hill & Sons
Belgium, 63
Sulphur—
Italy, 5 t. J. Kitchen, Ltd.
200 W. C. Bacon & Co.
11 G. Buor & Co.
15 C. Tennant, Sons,
& Co.
Talc—
France, 440 Blackwell & Co.
Tartaric Acid—
Holland, 5 pks. 3 cks. F. C. Devon
& Co.
6 9 Kirkpatrick
& Co.
Ultramarine—
Holland, 3 cs. Philipps & Graves
2 cks. W. Harrison & Co.
Germany, 34 T. Hamilton & Co.
Belgium, 20 brls. Leach & Co.
7 pks. W. Harrison & Co.
Holland, 7 5 cs. J. Barber
& Co.
10 Hernu, Peron,
& Co.
Varnish—
U. States, 6 pks. Dawson Bros.
81 Allan Bros. & Co.
Verdigris—
U. States, 180 W. Davis
White Lead—
Germany, 4 cks. Haefner, Hilpert,
& Co.
Holland, 10 H. Johnson & Sons
10 J. Sauer
France, 15 J. L. Lyon & Co.
Belgium, 21 Burrell & Co.
18 J. L. Lyon & Co.
Germany, 28 M. Ashby, Ltd.
Holland, 8 A. & M. Zimmermann
Wood Pulp—
Holland, 3,815 pks. E. J. & W.
Goldsmit
68 Rosenberg, Loewe,
& Co.
Norway, 80 Hummel & Co.
Germany, 520 H. Lambert
Norway, 200 J. Sharp
200 W. E. Bott & Co.
200 W. G. Taylor & Co.
Holland, 37 Thames S. T. & L. Co.
493 Philipps & Graves
Norway, 500 Tough & Henderson
80 Johnsen & Jorgensen
Holland, 74 Henderson, Craig,
& Co.
Zinc Oxide—
Holland, 75 brls. M. Ashby, Ltd.
200 Hubbuck & Co.
Germany, 50 cks. J. Matton
Belgium, 15 J. Harrison
Holland, 50 J. Matton
Zinc Sulphate—
Germany, 31 cks. Burgoyne & Co.

LIVERPOOL.

Week ending January 21st.

Acetate of Lime—
New York, 889 bgs.
Acetic Acid—
Rotterdam, 17 balloons
Albumen—
Marseilles, 2 cs. J. L. Lyon
& Co.
Alum Cake—
Rotterdam, 105 cks.
Ammonium Carbonate—
Marseilles, 4 cks.
Barytes—
Rotterdam, 22 cks. 196 bgs.
Bone Meal—
Bombay, 6,971 bgs.
Boric Acid—
Leghorn, 12 cs. 60 cks.
Calcium Carbide—
New York, 52 dms.
Caoutchouc—
Hamburg, 2 cks.
Castor Oil—
Bombay, 597 cks.

Chemicals (otherwise undescribed)
New York, 10 brls.
Havre, 650 pks. Cunard
S. S. Co., Ltd.
Rotterdam, 3 cs.
Cod Oil—
Hamburg, 5 brls.
Colours—
Rotterdam, 15 tubs 1 cs.
Cream of Tartar—
Oporto, 5 cks. Sachse &
Klemm
Dyestuffs—
Argols, 107 cks.
Cochineal, 7 bgs. Widow
Duranty & Co.
Divi Divi, 120 bgs.
Extracts, 59 cks. 59 bxs.
Halifax, 2,486 ps.
Mobile, 6,222 bls. 283 bgs.
Gambler, 12,698 bgs.
Myrabolams, 14 bls.
Orchella, 178 bgs.
Lisbon, 178 bgs.
Turmeric, 4,900 sks. Cunard
S. S. Co., Ltd.
Glucose—
New York, 100 brls. T. M. Ducht
& Son
1,200
Glue—
Hamburg, 90 bgs.
Rouen, 59 cks. Co-op.
W'sale Society, Ltd.
Lisbon, 20 Taylor & Co.
Lamp Black—
New York, 100 brls. Mander Bros.
Lead Oxide—
Bordeaux, 89 bgs. 8 cks.
Manganese Ore—
Visagapatam, 1,000 t. Darwen & Mostyn
Iron Co.
Mica—
New York, 30 brls.
Minium—
Rotterdam, 91 cks.
Molasses—
N. Orleans, 1,000 brls. F. W.
Simmonds & Son
Naphtha—
New York, 3,440 brls.
Ochre—
Marseilles, 20 brls. 86 cks.
Bordeaux, 20
Paint—
Boston, 5 cs. S. Brukewich
& Co.
50 M. Nickel & Co.
Paraffin Scale—
New York, 1,215 brls. Thompson &
Bedford
Baltimore, 100
Peroxide of Iron—
Visagapatam, 100 t. Mockgreen Bros.
Phosphate—
Antwerp, 3,500 bgs.
Bona (Algeria), 1,085 t.
Rotterdam, 1
Phosphate Rock—
Port Royal, 2,400 t.
Phosphorus—
Norfolk, Va., 20 cs.
New York, 40
Potaah—
Rouen, 67 cks. Co-op. W'sale
Society, Ltd.
Pyrites—
Huelva, 1,353 t. Matheson
& Co.
Rosin—
New York, 250 brls.
Para, 8 bgs. Pinto
Leite & Nephew
Baltimore, 600
Salicylic Acid—
Hamburg, 1 cs.
Salt—
Havre, 10 pks. Cunard
S. S. Co., Ltd.
Saltpetre—
Hamburg, 4 cks. 30 bgs. 25 kgs.

Silver Sulphide—
Colon, 2 cs. Gruning & Co.
Soap—
Marseilles, 12 cs.
Newport News, 200 brls.
Hamburg, 15
Boston, 10 W. Foggett
Starch—
Rotterdam, 70 cs.
Boston, 825 sks.
7 Phillips & Co.
Newport News, 600 lgs.
Baltimore, 100
New York, 1,100 250
qty. J. Armstrong & Co.
Stearine—
New York, 5 hds.
St. John's, Nfld., 1 bx. Job Bros.
Baltimore, 20 Colby & Co.
Sulphur—
Catania, 150 t. 1,400 bgs. 64 brls.
Tallow—
Boston, 82 brls. 27 hds.
New York, 268 100
Baltimore, 105 tcs. Colby & Co.
New York, 70
Tartar—
Bordeaux, 13 cks.
Tartaric Acid—
Rotterdam, 6 cks. 7 cs.
Treacle—
New York, 100 brls.
Charente, 1 cs.
Boston, 1,500
Ultramarine—
Rotterdam, 10 cks.
White Lead—
Rotterdam, 1 cs. J. Matthews
& Co.
186 cks.
Wood Pulp—
Rotterdam, 100 brls.
Skien, 3,802
Zinc Ashes—
Rotterdam, 12 cks.
Zinc Oxide—
Rotterdam, 20 cs. J. Matthews
& Co.
Zinc White—
Rotterdam, 100 cks.
Hamburg, 120

MANCHESTER.

Week ending January 23rd

Albumen—
Hamburg, 6 cks.
Alizarine—
Rotterdam, 6 cks. 2 cs. 2 brls.
Alumina Sulphate—
Rotterdam, 14 cks.
Aluminous Cake—
Rotterdam, 195 cks.
Aniline Colours—
Rotterdam, 19 cks. 5 cs.
Aniline Salts—
Rotterdam, 4 cks.
Bone Ash—
Rio Grande Do Sul, 563 t. J. Gordon
& Co.
Boric Acid—
Hamburg, 6 cks.
Caustic Potash—
Treport, 21 dms.
Chemicals (otherwise undescribed)
Rouen, 32 cks.
Colours—
Hamburg, 6 cks. 13 cs.
Rotterdam, 19 65 brls.
Extracts—
Antwerp, 6 brls.
Farina—
Hamburg, 300 pks.
Glucose—
New York, 50 brls. T. M. Ducht
& Sons
Rotterdam, 10 cks.
Glue—
Rotterdam, 60 bgs.
Treport, 10 cks. 1 cs. 7 bls.
Hamburg, 85 pks.

Limestone —		
Antwerp,	13 cs.	3 crts.
Litharge —		
Rotterdam,	27 cks.	
Ochre —		
Treport,	37 cks.	
Paraffin Scale —		
New York,	977 brls.	Anglo-American Oil Co., Ltd.
Phosphate —		
Rotterdam,	15 cks.	
Pitch —		
Hamburg,	57 cks.	27 pks.
Potassium Bromide —		
Hamburg,	1 cs.	
Potassium Carbonate —		
Treport,	19 cks.	
Potassium Chloride —		
Hamburg,	23 cks.	
Potassium Sulphate —		
Rotterdam,	100 cks.	
Soda Crystals —		
Rouen,	20 cks.	
Sodium Nitrate —		
Rotterdam,	19 cks.	
Starch —		
New York,	200 bgs.	
Rotterdam,	240 cs.	
Antwerp,	256	
Stearine —		
New York,	100 bds.	Co-op. W'sale Society
Antwerp,	13 bgs.	
Tallow —		
New York,	50 bds.	Co-op. W'sale Society
Tar Salts —		
Hamburg,	2 pks.	
Tar Waste —		
Rotterdam,	16 cks.	
Tartaric Acid —		
Rotterdam,	14 cks.	15 kgs.
Tin Perchloride —		
Antwerp,	10 cks.	
Ultramarine —		
Rotterdam,	2 cs.	
Waste Salt —		
Hamburg,	2,500 pks.	
Wood Pulp —		
Gefle,	9,442 bdis.	Stott, Coker, & Co.
Gothenburg,	802 bls.	
Rotterdam,	240	147 113 pks.
Zinc Ashes —		
Antwerp,	8 cks.	
Zinc Oxide —		
New York,	100 brls.	

HULL.

Week ending January 23rd.

Alum —		
Hamburg,	1 ck.	Bailey & Leatham
Ammonium Acetate —		
Rotterdam,	6 pks.	W. & C. L. Ringrose
Barytes —		
Rotterdam,	22 cks.	Hutchinson & Son
Antwerp,	187	Bailey & Leatham
Ghent,	30 bgs.	Hutchinson & Son
Chemicals (otherwise undescribed)		
Boston,	22 pks.	Wilson, Sons, & Co., Ltd.
Bremen,	10 cks.	Veltmann & Co.
Hamburg,	1	Sissons Bros. & Co.
New York,	4	Wilson, Sons, & Co., Ltd.
Antwerp,	38 brls.	
Cod Oil —		
Drontheim,	10 brls.	Wilson, Sons, & Co., Ltd.
Aalesund,	110	
Colours —		
Rotterdam,	44 pks.	Hutchinson & Son
"	65	W. & C. L. Ringrose
Stettin,	12 brls.	6 cks.
Danzig,	12	Sons, & Co., Ltd.
Hamburg,	8	

Cottonseed Oil —		
New York,	100 brls.	Wilson, Sons, & Co., Ltd.
Dyestuffs —		
Alizarine		
Rotterdam,	65 pks.	Hutchinson & Son
"	10	W. & C. L. Ringrose
Argols		
Bordeaux,	37 bgs.	Rawson & Robinson
"	31 cks.	Wilson, Sons, & Co., Ltd.
Madder		
Rotterdam,	3 cks.	W. & C. L. Ringrose
Farina —		
Harlingen,	50 bgs.	W. & C. L. Ringrose
Stettin,	250	Wilson, Sons, & Co., Ltd.
Glucose —		
Rotterdam,	50 bgs.	Hutchinson & Son
New York,	300 brls.	
Glue —		
Hamburg,	9 cs.	Wilson, Sons, & Co., Ltd.
Guano —		
Bergen,	6 bgs.	Wilson, Sons, & Co., Ltd.
Lead Acetate —		
Hamburg,	31 cks.	Bailey & Leatham
Stettin,	23	Wilson, Sons, & Co., Ltd.
Ochre —		
Bordeaux,	14 cks.	Rawson & Robinson
Paint —		
Boston,	1 brl.	Wilson, Sons, & Co., Ltd.
Phosphate —		
Ghent,	250 t.	
Pitch —		
Amsterdam,	24 cks.	Hutchinson & Son
Rotterdam,	70	
Potash —		
Rotterdam,	20 dms.	Hutchinson & Son
Quicksilver —		
Libau,	100 cyldrs.	
Saltpetre —		
Hamburg,	20 cks.	Wilson, Sons, & Co., Ltd.
Antwerp,	135 bgs.	
Soap —		
Boston,	9 cs.	Wilson, Sons, & Co., Ltd.
Starch —		
Rotterdam,	55 cs.	Hutchinson & Son
Ghent,	166	Wilson, Sons, & Co., Ltd.
Odessa,	98 pks.	
Bremen,	3,139	Veltmann & Co.
"	28	
Antwerp,	1,198 cs.	Wilson, Sons, & Co., Ltd.
Stearine —		
Antwerp,	26 bgs.	Bailey & Leatham
"	31	Wilson, Sons, & Co., Ltd.
Tallow —		
Boston,	105 cks.	Wilson, Sons, & Co., Ltd.
Tar —		
Reval,	20 cks.	
Tartar —		
Bordeaux,	10 cks.	Rawson & Robinson
Tartaric Acid —		
Rotterdam,	2 cks.	W. & C. L. Ringrose
Treacle —		
Boston,	532 brls.	Wilson, Sons, & Co., Ltd.
New York,	210	
Turpentine —		
Bordeaux,	5 cks.	Rawson & Robinson
Varnish —		
New York,	20 brls.	Wilson, Sons, & Co., Ltd.
Waste Salt —		
Hamburg,	204 bgs.	

White Lead —		
Rotterdam,	73 cks.	Hutchinson & Son
Amsterdam,	69	
Wood Pulp		
Drontheim,	600 bls.	Wilson, Sons, & Co., Ltd.
Bergen,	384 pks.	
Gothenburg,	502 bls.	
Stettin,	204 pks.	
Christiania,	224 bls.	59 cs.
Hango,	630	J. Good & Sons

GLASGOW.

Week ending January 28th.

Albumen —		
Ghent,	20 cs.	
Aniline —		
Rotterdam,	2 bxs.	30 brls. J. Rankine & Son
Hamburg,	2 cs.	
Aniline Salts —		
Rotterdam,	14 cks.	J. Rankine & Son
Aracide Oil —		
Rotterdam,	1 ck.	J. Rankine & Son
Barium Sulphate —		
Antwerp,	170 bgs.	38 cks.
Barytes —		
Rotterdam,	119 cks.	J. Rankine & Son
Chrome Alum —		
Rotterdam,	15 brls.	J. Rankine & Son
Colours —		
Antwerp,	6 cs.	
Rotterdam,	4	68 pks. J. Rankine & Son
Cream of Tartar —		
Barcelona,	23 cks.	
Dyestuffs —		
Alizarine		
Rotterdam,	15 cks.	J. Rankine & Son
Cuteh		
Rangoon,	1,613 bxs.	P. Henderson & Co.
Extracts		
Antwerp,	6 cks.	
Madder		
Rotterdam,	2 cks.	1 pcl J. Rankine & Son
French Chalk —		
Fiume,	100 bgs.	P. M'Intosh & Sons
Gelatine —		
Antwerp,	4 cs.	
Glue —		
Fiume,	300 bgs.	
Rotterdam,	18	J. Rankine & Son
Hamburg,	100	
Infusorial Earth —		
Rotterdam,	1 bg.	J. Rankine & Son
Phosphate of Lime and Rock —		
Antwerp,	1,020 bgs.	
Potash —		
Rotterdam,	102 cks.	J. Rankine & Son
Pyrites —		
Huelva,	1,690 t.	Tharsis Co
Rosin —		
Charleston,	2,334 bls.	
Soap —		
Fiume,	83 cs.	
Sodium Sulphate —		
Antwerp,	17 cks.	
Starch —		
Antwerp,	40 cs.	
Fiume,	45 bgs.	
Rotterdam,	66 cs.	J. Rankine & Son
Stearine —		
Amsterdam,	61 bgs.	
Rotterdam,	14	J. Rankine & Son
Tartar —		
Bordeaux,	23 cks.	
Ultramarine —		
Rotterdam,	1 ck.	J. Rankine & Son
White Lead —		
Rotterdam,	47 cks.	J. Rankine & Son
Whiting —		
Dieppe,	35 cks.	J. & J. May, Ltd.

Wood Pulp —		
Christiania,	240 bls.	Ala
"	218	19 cs.
Zinc White —		
Rotterdam,	114 cks.	J. P.

TYNE.

Week ending January 23

Barium Chlorate —		
Rotterdam,	700 bgs.	Type 5
Barytes —		
Rotterdam,	140 bgs.	Type 5
Antwerp,	100	
Bleaching Powder —		
Rotterdam,	1 brl.	Type 5
Cryolite —		
Copenhagen,	1 ck.	
Glucose —		
New York,	50 brls.	
Limestone —		
Antwerp,	4 crts.	Type 5
Soap —		
Rotterdam,	10 cs.	Type 8
New York,	1 pk.	Withy
Starch —		
Antwerp,	220 cs.	Type 5
Varnish —		
New York,	5 brls.	Withy
Wood Pulp —		
Gothenburg,	800 pks.	
Arendal,	800 bls.	
Zinc Oxide —		
Antwerp,	20 brls.	Type 5
Zinc Sulphate —		
Gothenburg,	20 bgs.	

GOOLE.

Week ending January 20

Alizarine —		
Rotterdam,	12 cks.	
Alkali —		
Calais,	1 ck.	
Caoutchouc —		
Boulogne,	4 cks.	
Dyestuffs (otherwise undescd)		
Rotterdam,	267 cks.	43 cs. 4 d
Boulogne,	76	4 23 p
Ochre —		
Rouen,	75 cks.	
Potash —		
Hamburg,	15 cks.	
Dunkirk,	8	
Calais,		14 d
Saltpetre —		
Rotterdam,	100 bgs.	
Hamburg,	9 cks.	
Starch —		
Ghent,	40 bxs.	
Tartaric Acid —		
Rotterdam,	5 cks.	
Waste Salt —		
Hamburg,	250 cks.	

GRIMSBY.

Week ending January 23

Albumen —		
Hamburg,	10 cks.	
Barytes —		
Hamburg,	6 cks.	
Caoutchouc —		
Hamburg,	5 cs.	
Chemicals (otherwise undescd)		
Antwerp,	12 dms.	1 cs. 23 p
Hamburg,		60
Colours —		
Rotterdam,	16 cks.	
Antwerp,	18	
Hamburg,	17	31 cs. 10 p
Glue —		
Dieppe,	2 cs.	

EXPORTS OF CHEMICAL PRODUCTS

OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			LIVERPOOL.		
Week ending January 27th.			Week ending January 27th.		
Acid—			Albumen—		
Hydrochloric, 1 cs.	£10		New York, 1 t.	£107	
Sulphuric, 30 cs.	£40		Alkali—		
Sulphuric, 30 cs.	£40		Boston, 16 t. 4 c.	£115	
Sulphuric, 30 cs.	£40		Alum—		
Sulphuric, 30 cs.	£40		St. John, 3 t. 4 c.	£16	
Sulphuric, 30 cs.	£40		Alexandria, 6 10	30	
Sulphuric, 30 cs.	£40		Cape Town, 2 10	12	
Sulphuric, 30 cs.	£40		Constantinople, 2 16 3 q.	15	
Sulphuric, 30 cs.	£40		Valparaiso, 1 6	6	
Sulphuric, 30 cs.	£40		Pernambuco, 1	5	
Sulphuric, 30 cs.	£40		B. Ayres, 3 2	14	
Sulphuric, 30 cs.	£40		Melbourne, 19 15	90	
Sulphuric, 30 cs.	£40		Lisbon, 1 15	8	
Ammonia (Liquid)—			Ammonia (Liquid)—		
Genoa, 10 dms.	£75		Piræus, 5 c.	£6	
Ammonium Carbonate			Ammonium Carbonate		
Es, 6 t. 9 c.	£20		Marseilles, 15 c. 1 q.	£26	
Es, 6 t. 13	170		Ammonium Chloride—		
Es, 6 t. 15	15		Bourgas, 2 t. 1 c.	£70	
Ammonium Chloride—			Barcelona, 16	30	
Es, 6 cks.	£30		Calcutta, 3 15	119	
Ammonium Sulphate—			Varna, 6	10	
Es, 15 t. 2 c.	£118		New York, 9 10	200	
Es, 200	560		Rio de Janeiro, 10 2	22	
Es, 70	160		Trieste, 5 19 1	191	
Es, 19	395		Ghent, 1 2	21	
Es, 50	1,600		Smyrna, 1 16	62	
Es, 60	420		Alexandria, 3	96	
Es, 50	400		Constantinople, 1 4	41	
Es, 200	1,630		Ammonium Sulphate—		
Es, 200	800		New York, 50 t. 17 c.	£180	
Ammonia—			Malaga, 20 11	165	
Es, 2 t. 9 c.	£111		Philadelphia, 20 6 2 q.	165	
Ammonia Acid—			Cartagena, 5 12	45	
Es, 6 cks.	£13		Canaria, 20	160	
Ammonia Acid—			Valencia, 193 1	1,560	
Es, 10 c.	£15		Genoa, 189 3	1,197	
Es, 2 t. 5	73		Basic Slag—		
Ammonia Acid—			Nantes, 200 t.	£250	
Es, 10 c.	£10		Bleaching Powder—		
Es, 10	11		Romby, 139 cs.	20 bxs.	
Es, 2 t. 6	80		Boston, 662 cks.		
Es, 10	10		Calcutta, 242		
Ammonia Acid—			Genoa, 222		
Es, 20 dms.	£18		Havana, 20	20 brls.	
Es, 203 cks.	1,615		Leghorn, 20		
Es, 21 t. 6 c.	420		Lisbon, 21		
Es, 8	59		Naples, 84		
Es, 5	11		Newport News, 349		
Es, 4 cs. 10 kgs.	14		New York, 288 27		
Ammonia Acid Gas—			Oporto, 3		
Es, 2 cs.	£2		Paris, 28		
Potash—			Passages, 12		
Es, 16 c.	£23		Rotterdam, 20		
Soda—			Rouen, 20		
Es, 2 t. 16 c.	£47		Boracic Acid—		
Es, 1 19	47		Rotterdam, 2 t.	£60	
Es, 7	17		Singapore, 1 c.	3	
Es, 54	448		Hioho, 3	73	
Es, 3 11	79		Borax—		
Es, 7	8		Hamburg, 3 t.	£62	
Ammonia (otherwise undes.)—			Rosario, 2 19 c.	59	
Es, 4 cs.	£22		Brisbane, 2 10	11	
Es, 10	29		Melbourne, 2	42	
Es, 3 cks.	29		Adelaide, 1	1	
Es, 20 kgs.	20		Santander, 6 7	128	
Kong, 5	20		Genoa, 5 1	101	
Es, 1	12		Oporto, 8	8	
Es, 6	77		Talcahuano, 5 3 q.	10	
Es, 79	1,001		Singapore, 5	7	
Es, 6	21		Rotterdam, 2 10	50	
Es, 40 pks.	33		Es, 11	—	
Es, 14 44	214		Calcium Chloride—		
Es, 2	16		Melbourne, 10 t. 14 c.	£24	
Es, 24	63		Carbolic Acid—		
Es, 31	87		Santander, 2 t. 4 c. 3 q.	£126	
Es, 2 4	45		Newport News, 13	685	
Es, 15 10	127		New York, 10 cks.	80	
Es, 5 22	66		Leghorn, 10	41	
Ammonia Acid—			Barcelona, 1	67	
Es, 2 c.	£12		Kote, 5	342	
Es, 1	7		Genoa, 10 2	66	
Es, 14	72		Rotterdam, 16	219	
Es, 2	13		Rouen, 5 5	350	
Es, 20 kgs.	117		Gaustic Potash—		
Es, 25 146	212		New York, 1 t. 12 c.	£52	
Es, 1 t. 15 c.	220		Sydney, 1 18	55	
Es, 2 brls.	39		Melbourne, 2	2	
Es, 4 cks.	132		Gaustic Soda—		
Es, 1	30		Adelaide, 35 dms.		
			Alicante, 35 brls.		

Amsterdam, 110	Leghorn, 63 10 3 1,054	Algoa Bay, 18 18	Shanghai, 2,563
Baltimore, 150	Cette, 379 5 2 6,135	Antwerp, 214	Trinidad, 160 311
Bangkok, 15	Bordeaux, 170 5 1 2,905	Asim, 10	Valparaiso, 2
Barcelona, 100	Genoa, 167 13 2,819	Bahta, 9	Yokohama, 4
Beyroul, 30	Marseilles, 47 8 870	Baltimore, 1,485	
Boston, 100 50 cks.	Copperas—	Bakana, 44 12	Soda—
Cartagena, S.A., 36	Varna, 3 L 10 C. 66	Boma, 45 9	Sydney, 6 brls.
Catania, 15	Disinfectants—	Boston, 100	Soda Alkali—
Corunna, 8 66	Calcutta, 4 dms. 2 cs. 69	Brunswick, 450	Alicante, 35 brls.
Denbirk, 35	New York, 3 L 4 C. 1 Q. 45	B. Ayres, 50	Leghorn, 40
Genoa, 154	Guano—	Calcutta, 7,339 3 100	Oporto, 45
Hamburg, 40	Malaga, 79 L 12 C. 6595	Cameroons, 105 5	Rotterdam, 63
Havre, 25	Iodine—	Cette, 20	Sydney, 53
Havana, 120	Rotterdam, 1 L 8 C. 2 Q. 62,150	Chama, 3 15	Soda Ash—
Jaffa, 150	Iron Oxide—	E. London, 43	Adelaide, 130 cks.
Las Palmas, 40	New York, 14 L 14 C. 635	Fuca, 20	Antwerp, 300 bgs.
Lisbon, 410	Genoa, 14 10 110	Galveston, 270	Baltimore, 600
Maracaibo, 10	Lime—	Ghent, 100	Barcelona, 41
Melbourne, 301	C. C. Castle, 9 L 11 C. 1 Q. 666	Halifax, 1,748	Boston, 1,212 78 tcs. 118
Messina, 40	Boma, 2 10 7	Iquitos, 8	Brisbane, 174
Naples, 111	Magnesia—	Kingston, 10	B. Ayres, 50 brls. 9
Newcastle, 30	Adelaide, 11 cs. 40	Lagos, 164 5	Calcutta, 200
N. Orleans, 70 bxs. 40	Rouen, 40	Landana, 2	Christiania, 144 10
Newport News, 100	Magnesium Chloride—	Loango, 10	Copenhagen, 100
N. York, 37 bxs. 425 150 20	Paris, 10 L 6 C. 625	Malta, 5	Fiume, 100
Oporto, 75	Manure—	Matadi, 22 6	Genoa, 200
Para, 20	Philadelphia, 10 L 1 C. 648	N. Orleans, 65	Ghent, 1
Paris, 35	Marseilles, 15 1 C. 83	Newport News, 100	Hamburg, 100
Penedo, 15	Rocheport, 28 6 146	New York, 390	Hio, 61
Pernambuco, 50	Cherbourg, 6 18 42	N. Kombi, 9	Konigsberg, 25
Philadelphia, 50 252 cs.	Oxalic Acid—	Noqui, 20	Leghorn, 100
Portland, M., 35	Barcelona, 5 L 1 C. 2 Q. 6,170	Portland O., 1,141 3	Melbourne, 745
Rotterdam, 273	Paint—	Portland, Me., 20	New York, 3,402 114 tcs. 51
Samarang, 24	Accra, 12 kgs.	Pt. Natal, 80	Philadelphia, 4,300 431
San Francisco, 50 10 20 bxs.	Arroyo, 3 cks.	Quillo, 50	Piraeus, 47 brls.
San Sebastian, 100 60 pks.	Beyroul, 30 10 dms.	Rangoon, 528	Rio de Janeiro, 150 40
Seville, 10 35	Bombay, 8 2	Rio Del Rey, 8	St. John's, Nfld., 13 tcs. 11
Sourabaya, 1,050	Cape Coast, 2 60	St. John, N.B., 393	Samarang, 300 90
Stettin, 10	La Libertad, 300	San Francisco, 687	Smyrna, 193
Sydney, 40 5 cks.	Lisbon, 40	Sierra Leone, 50 8	Sydney, 373
Tarragona, 50	Port Limon, 202	Sydney, 215	Talcahuano, 200
Valparaiso, 90	St. John, N.B., 45 88 pks.	Trinidad, 10 15	Valparaiso, 10
Vigo, 90	St. Croix, 1 1 cs.	Ukaka, 18 5	
	St. Thomas, 4 45	Valparaiso, 4 5	Salt Cake—
Chemicals (other wise undescribed)	Salonica, 5 1 cs.		Leghorn, 110 L 9 C. 6230
Jeddah, 2 L 639	Savanilla, 5 45	Saltpetre—	Baltimore, 201 13 400
Genoa, 2 5 C. 74	Vera Cruz, 10 200	Rio de Janeiro, 1 L 6 C. 2 Q. 630	Sheep Dip—
Antwerp, 10 17	Painters' Colours—	Portland O., 10 L 6500	Portland O., 1 1 C. 35
Varna, 12 19	Akassa, 10 kgs.	Pt. Natal, 53 15 2 Q. 1,430	B. Ayres, 8 18 2 250
Smyrna, 1 33	Antwerp, 10 cks.		Soap—
Kurrachee, 12 19	Bahia, 90 brls. 11 7 cs.	Accra, 100 bxs. 60 tins 25 cs.	
New York, 5 153	Bombay, 275 1,918 61	Akassa, 152	Algoa Bay, 200
Rotterdam, 10 15	B. Ayres, 3 36 7	Antigua, 200	Amsterdam, 40
Callao, 1 30	Para, 15 3 18 tcs. 9	Antwerp, 20	Barbadoes, 467
Bombay, 4 10 153	10 dms. 17 pks.	Benin, 1,750	Bombay, 364 14
Boston, 42 8 2 Q. 349	Salaora, 50 kgs. 79	Boston, 364 500	B. Ayres, 1
Brisbane, 13 5	Paraffin Wax—	Calcutta, 4	Cameroons, 1
Philadelphia, 13 3 402	Ancona, 50 bgs.	Cape Coast, 250	Cape Town, 2,000 12
Calcutta, 3 15 428	Genoa, 38	Christiana, 251	Colombo, 5
China Clay—	Para, 25 cs.	Conakry, 50	Constantinople, 20
Barcelona, 265 bgs.	Salonica, 30	E. London, 300	Gibralter, 350
Bombay, 435 cks.	Phosphorus—	Ghent, 60	Guayaquil, 40
Boston, 580	Hong Kong, 2 C. 626	Guayaquil, 25 L 14 C. 63,500	Half Jack, 20
Malaga, 20	Yokohama, 10 130	Potassium Bichromate—	Karachi, 267
Philadelphia, 1,770	Hio, 6 L 1,585	Vera Cruz, 10 C. 2 Q. 624	Kingston, 3,556
Portland, 230	Kingston, 4 79	Potassium Carbonate—	Lagos, 60
Rio de Janeiro, 72	Potash—	New York, 18 L 8 C. 6329	Las Palmas, 992
Citric Acid—	B. Ayres, 8 C. 2 Q. 65	Potassium Chlorate—	Loango, 470
Genoa, 3 C. 629	Potash Salts—	Sydney, 2 L 10 C. 684	Manaos, 900
Coal Products—	Guayaquil, 25 L 14 C. 63,500	Rio de Janeiro, 4 18 191	Mosel Bay, 50
Aniline Colours—	Potassium Bichromate—	Boston, 6 5 196	N. Orleans, 500
New York, 12 cks.	Vera Cruz, 10 C. 2 Q. 624	Vera Cruz, 2 9	New York, 200 500
Rouen, 2 cs. 1 kg.	Potassium Carbonate—	Calcutta, 3 5 9	Opobo, 500
Aniline Oil	New York, 18 L 8 C. 6329	Shanghai, 3 10 84	Patras, 24
Philadelphia, 13 dms.	Potassium Chlorate—	Kong Kong, 2 10 67	Penang, 5
Aniline Salts	Sydney, 2 L 10 C. 684	Rotterdam, 1 10 168	Philadelphia, 1,500 1,225 60
New York, 27 cks. 12 cs.	Rio de Janeiro, 4 18 191	Reval, 5 15 184	Pt. Natal, 298
Philadelphia, 40	Boston, 6 5 196	New York, 53 15 2,109	Pt. Said, 20
Piraeus, 10	Vera Cruz, 2 9	Hio, 20 719	Quittah, 1
Pitch	Calcutta, 3 5 9	Copenhagen, 5 10 205	Rangoon, 1,120
Alexandria, 50 brls.	Shanghai, 3 10 84	Gothenburg, 11 14 407	Rio de Janeiro, 1
Cette, 840 L.	Kong Kong, 2 10 67	Genoa, 2 73	Rotterdam, 500
Genoa, 50	Rotterdam, 1 10 168	Naples, 3 5 132	St. John's, Nfld., 18 10 bgs.
Tar	Melbourne, 4 15 184	Potassium Prussiate—	San Francisco, 100
Boma, 10 cks.	New York, 53 15 2,109	Danzig, 9 C. 658	Smyrna, 50
Kustendjie, 30 brls.	Hio, 20 719	Salt—	Sydney, 857
Philadelphia, 125	Copenhagen, 5 10 205	Accra, 40 L.	Talcahuano, 50
St. John, N.B., 20	Gothenburg, 11 14 407	Akassa, 5 10 C.	Valparaiso, 50
Coal Products (other wise undes.)—	Genoa, 2 73		Sodium Bicarbonate—
Boston, 40 cs. 2 kgs.	Naples, 3 5 132		Adelaide, 90 kgs. 2 cks.
Copper Sulphate—	Potassium Prussiate—		Alicante, 35
Trieste, 9 L 6 C. 6160	Danzig, 9 C. 658		Amsterdam, 60
Messina, 3 49	Salt—		Antwerp, 80 14
Brisbane, 1 17	Accra, 40 L.		Barcelona, 40
Nantes, 9 160	Akassa, 5 10 C.		Batoum, 20
Antwerp, 24 1 Q. 12			Bombay, 135
Palermo, 5 4 83			Bordeaux, 60 20 brls.
Paris, 9 15 153			Bourgas, 20
Bari, 65 7 1 1,054			Brisbane, 350
Ancona, 30 6 578			B. Ayres, 127 50 bgs. 41
Lisbon, 52 12 3 1,045			Calcutta, 120 25
Naples, 73 15 3 966			Christiana, 25 30 brls.
			Gijon, 150
			Hamburg, 150
			Havana, 20
			Havre, 109
			Hio, 500
			Karachi, 100
			Libau, 213
			Madras, 100
			Melbourne, 802 18
			Naples, 100
			Newcastle, 200
			Odessa, 150
			Paris, 105
			Rotterdam, 100
			St. John's, Nfld., 18 10 bgs.
			San Francisco, 100
			Smyrna, 50
			Sydney, 857
			Talcahuano, 50
			Valparaiso, 50
			Sodium Carbonate—
			Boston, 16 brls.
			Sodium Hyposulphite—
			Melbourne, 7 cks.
			Sodium Silicate—
			Alicante, 32 cks.
			Barcelona, 30
			Bombay, 5 8 brls. 2 dms.
			Brisbane, 16
			Kingston, 16
			Malaga, 12

19	27
20	14
3	
25	
500 bgs.	
20 cks.	
ulphate—	
219 bgs.	
2 t.	17 c.
205	7
I.B.,	9
Dr.,	3
Acid—	
15 c.	69
sphates—	
25 t.	6 c.
312	4
120	8
100	2
8	305
473	16
497	4
35	1
96	81
150	3,620
30	375
15	65
20 t.	9 c.
1 t.	4 c.
1 c.	2 q.
10	1
6	3
10	4
4 dms.	
5 c.	3 q.
50 kgs.	£14
8 cks.	
ide—	
5 t.	7 c.
1	15
15	18
CHESTER.	
iding January 27th.	
130 brls.	
100	
20 kgs.	
50 cks.	
lours—	
3 cks.	
4 dms.	10 tins
5 cks.	
oda—	
30 dms.	
25	
(otherwise undescribed)	
28 cks.	
24 cks.	
ulphate—	
10 brls.	
20 brls.	
10 brls.	
126	
il—	
6 brls.	
n Sulphate—	
40 bgs.	
7 cks.	
10	
mine—	
3 cks.	
Colours—	
53 pks.	
ax—	
5 brls.	
985 t.	17 c.

Potassium Arseniate—	
Paris,	10 brls.
Soda Ash—	
Latakia,	20 brls.
Soda Bottoms—	
Rotterdam,	35 dms.
Soda Crystals—	
Alexandretta,	8 cks.
Sodium Bicarbonate—	
Alexandretta,	20 kgs.
Tunis,	20
Turpentine—	
Alexandria,	80 dms.
Zinc Ashes—	
Rotterdam,	50 bgs.

HULL.

Week ending January 23rd.

Alkali—	
Libau,	55 cks.
Ammonium Sulphate—	
Ghent,	200 bgs.
Antimony—	
Reval,	80 cks.
Benzol—	
Rotterdam,	47 brls.
Bleaching Powder—	
Bombay,	90 dms.
Caustic Soda—	
Bombay,	10 dms.
Chemicals (otherwise undescribed)	
Antwerp,	12 cks. 4 cs.
Bombay,	695 2 320 dms.
Christiania,	2,680 lbs.
Gothenburg,	11
Hamburg,	7 199 16 pks.
Rouen,	40
Reval,	1
Cobalt Oxide—	
Antwerp,	2 cs.
Cottonseed Oil—	
Amsterdam,	901 c.
Antwerp,	655
Dunkirk,	200
Hamburg,	218
Rotterdam,	609
Rouen,	547
Stettin,	104
Dyestuffs (otherwise undescribed)	
Reval,	1 cs.
Stettin,	3 cks. 2
Guano—	
Dunkirk,	534 bgs.
Linseed Oil—	
Antwerp,	18 c.
Bombay,	495
Christiania,	43
Christiansund,	20
Drontheim,	61
Gothenburg,	102
Hamburg,	304
Ochre—	
Hamburg,	11 cks.
Painters' Colours—	
Amsterdam,	1 ck.
Antwerp,	37 186 kgs.
Bombay,	2
Bombay,	4 65 cs. 1,260
Copenhagen,	3 8 dms.
Gothenburg,	10
Ghent,	2
Hamburg,	1 5
New York,	211
Rotterdam,	1 4
Rouen,	9 1
Stettin,	80 1
Phosphate Meal—	
Bremen,	80 t.
Pitch—	
Antwerp,	369 t.
Tallow—	
Bombay,	27 brls.
Hamburg,	1 ck.
Tar—	
Copenhagen,	10 cks.
Stettin,	5
Varnish—	
Antwerp,	1 ck. 1 cs.
Bombay,	75 dms.
Gothenburg,	2
Hamburg,	1
Rouen,	1

GLASGOW.

Week ending January 28th.

Ammonium Sulphate—	
Barcelona,	51 t. 15½ c.
Castellon,	101 9½
Valencia,	440 1
Chloroform—	
Adelaide,	£21. 10s.
Coal Products—	
Aniline Oil	
Oporto,	£25. 14s.
Pitch	
Antwerp,	520 t.
Aviles,	qty.
Gothenburg,	£215
Italy,	562
Tar	
Calcutta,	£125
Tar Oil	
Hamburg,	42 t. 9 c.
Coal Products (otherwise undes.)—	
Germany,	£140
Dyestuffs (otherwise undes.)—	
Wellington,	£70
Extracts—	
Gothenburg,	£272
Gelatine—	
Canada,	£72
Indigo—	
Ipswich,	£42
Iodine—	
Rotterdam,	£240
Lead Nitrate	
Paris,	10 t. 18½ c.
Linseed Oil—	
Wellington,	1 t. 8½ c.
Magnesium Sulphate—	
Adelaide,	6 t. 3½ c.
Manganese Ore—	
New York,	5 t.
Paint—	
Calcutta,	11
Colombo,	qty.
Jeremie,	20
Brisbane,	49
Painters' Colours—	
Bombay,	£129
Sydney,	259
Paraffin Wax—	
Barcelona,	£490
Bombay,	23
Madras,	32
Valencia,	70
Bordeaux,	100
Italy,	752
Nantes,	30
Potassium Bichromate—	
Barcelona,	£1,251
U.S.A.,	626
Italy,	471
Melbourne,	22
Paris,	206
Potassium Prussiate—	
Italy,	2 t. 14 c.
Rosin Oil—	
Rotterdam,	£20
Sheep Dip—	
Pt. Elizabeth,	£120
Soap—	
E. London,	2 t. 10 c.
Sodium Bichromate—	
Barcelona,	21 t. 14½ c.
U.S.A.,	12 14
Italy,	16 13½
Rouanne,	5 3½
Rouen,	37 17½
Superphosphates—	
Italy,	24 t. 12½ c.
Tallow—	
Rotterdam,	8 t. 17 c.
Oporto,	1 3
Treacle—	
E. London,	3 t. 15 c.
Gothenburg,	11 ¾
Varnish—	
Sicily,	£20
Zinc Ashes—	
Rotterdam,	7 t. 11 c.

TYNE.

Week ending January 23rd.

Alkali—	
Amsterdam,	18 t. 10 c.
Aluminous Cake—	
Copenhagen,	50 t. 5 c.

Antimony—

Rotterdam, 5 t.

Asbestos—

Bergen, 2 pks.

Bleaching Powder—

Antwerp, 20 t. 3 c.

Rotterdam, 26 17

Lisbon, 12

Odense, 10 2

Bergen, 16 cks.

Copenhagen, 21 t. 15

Gothenburg, 40 7

Christiania, 6 1

Amsterdam, 10 11

Caustic Soda—

Malta, 4 t. 18 c.

Rotterdam, 37 14

Venice, 18

Gothenburg, 4 18

Amsterdam, 4 18

Magnesia—

Rotterdam, 1 t.

Paint—

Antwerp, 1 t. 10 c.

Soda—

Constantinople, 34 t. 2 c.

Antwerp, 10 4

Venice, 35 9

Christiania, 5 3

Amsterdam, 11 17

Soda Ash—

Rotterdam, 1 t. 8 c.

Venice, 10 17

Sodium Sulphate—

Antwerp, 50 t. 2 c.

Gothenburg, 1 18

Superphosphates—

Venice, 1,520 t.

La Rochelle, 750

White Lead—

Copenhagen, 1 t. 8 c.

Zinc Ashes—

Rotterdam, 8 t. 14 c.

GOOLE.

Week ending January 20th.

Benzol—	
Rotterdam,	75 dms.
Chemicals (otherwise undescribed)	
Amsterdam,	20 cks.
Ghent,	4 cs.
Rouen,	1 dm.
Coal Products (otherwise undes.)—	
Amsterdam,	12 cks.
Antwerp,	1 dm.
Boulogne,	36
Ghent,	1
Rotterdam,	4 1 cs. 2 pks.
Colours—	
Amsterdam,	1 ck.
Boulogne,	1 cs.
Rotterdam,	1
Creosote—	
Kuysna,	2,400 brls.
Dyestuffs (otherwise undescribed)	
Ghent,	600 bgs.
Manure—	
Demerara,	3,650 bgs.
Osterd,	700
Ghent,	210
Pitch—	
Antwerp,	350 t.
Soap—	
Antwerp,	2 cks. 5 cs.

GRIMSBY.

Week ending January 23rd.

Alkali—	
Dieppe,	1 ck.
Hamburg,	15
Rotterdam,	12 cs.
Chemicals (otherwise undescribed)	
Hamburg,	20 dms.
Coal Products (otherwise undes.)—	
Dieppe,	65 cks.
Hamburg,	7
Rotterdam,	5 dms.
Colours—	
Antwerp,	1 cs.
Hamburg,	1 ck.
Pitch—	
Antwerp,	62 t.

PRICES CURRENT.

WEDNESDAY, FEBRUARY 3RD, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids :—

Acids:—		£	s.	d.
Acetic, 25 %, and 40 %	per cwt.	5/10½	&	8/9
Glacial	"	40/-		
Arsenic S.G., 2000°	"	1	4	0
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	"	0	0	1½
Oxalic	nett	0	0	3½
Phosphoric, 1750°	"	0	0	11½
Picnic	"	0	0	11
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" " 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	7	6
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	"	0	1	1
Arsenic, white powdered	nett per ton	24	0	0
Alum (loose lump)	"	4	10	0
Alumina Sulphate (pure)	"	4	2	6
Aluminoferric	"	2	5	0
Aluminium (Ingot metal 98/99¼ %)	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	4
" 880=28° B.	"	0	0	2½
" =24° B.	"	0	0	1¾
" Carbonate	nett	0	0	3
" Muriate	per ton	19	15	0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- &	33/-	
" Nitrate	per ton	33	0	0
" Phosphate	per lb.	0	0	4½
" Sulphate (grey) London	per ton	7	17	6
" (grey) Hull	"	7	16	3
Aniline Oil (pure)	per lb.	0	0	9½
Aniline Salt	"	0	0	8½
Antimony	per ton	31	5	0
" (tartar emetic)	per lb.	0	0	9½
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	7	0	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	42/6 to	65/-	
Bleaching Powder, 35 %	nett	6	10	0
" Liqueur, 7 %	"	3	10	0
Bisulphide of Carbon	"	13	10	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	"	15/- to	30/-	

Coal Tar Products and Dyes :—

Alizarine (artificial) 20 %	..	..	nett	per lb.	0	0	7
Magenta	..	..	..	..	0	3	0
Anthracene, 30 % A, f.o.b. London	..	..	per	unit per cwt.	0	0	8 1/2
Benzol, 90's	..	..	..	per gallon	0	3	6
50/90	..	..	..	..	0	2	11
Carbolic Acid (crude 60°)	..	..	..	per gallon	0	2	2
" (crystallised 40°)	..	..	..	per lb.	0	0	7 1/2
" (liquid 95/97%)	..	..	..	per gallon	0	0	10
Creosote (ordinary)	..	..	..	..	0	0	2
" (filtered for Lucigen light)	..	..	..	..	0	0	2 1/2
Crude Naphtha 30 % @ 120° C.	..	..	..	..	0	1	1
Grease Oils, 22° Tw.	..	..	..	per ton	2	15	0
Pitch, f.o.b. Liverpool or Garston	..	..	..	..	1	3	0
Solvent Naphtha, 90 % at 160°	..	..	..	per gallon	0	1	8
Copper	..	..	..	per ton	51	7	6
" Sulphate	..	..	..	..	19	10	0
" Oxide (copper scales)	..	..	..	..	45	0	0
Glycerine (crude)	..	..	..	..	40	0	0
" (distilled S.G. 1.250°)	..	..	..	..	70	0	0
Iodine	..	..	..	nett, per oz.	0	0	9
Iron Sulphate (copperas)	..	..	..	per ton	1	10	0
" Sulphide (antimony slag)	..	..	..	..	2	0	0
Lead (sheet) for cash	..	..	..	..	13	5	0
" Litharge Flake (ex ship)	..	..	..	..	14	15	0
" Acetate (white)	..	..	..	..	23	10	0
" brown)	..	..	..	..	15	0	0
" Carbonate (white lead) pure	..	..	..	..	16	15	0
Nitrate	..	..	..	..	1	0	0

						£	s.	d.
Lime, Acetate (brown) (ex ship)	..	..	..	..	per ton	5	0	0
" (grey) (ex ship)	..	..	..	..	"	8	5	0
Magnesium (ribbon and wire)	..	..	..	..	per oz.	0	2	3
" Chloride (ex ship)	..	..	..	..	per ton	2	7	0
" Carbonate ..	..	..	..	..	per cwt.	1	7	6
" Calcined Magnesia	..	..	..	..	per ton.	8	15	0
" Sulphate (Epsom Salts)	..	..	..	..	per ton	2	15	0
Manganese, Sulphate ..	..	..	..	..	"	16	10	0
" Borate ..	..	..	..	..	per cwt.	2	10	0
" Ore, 70 %	..	..	..	..	per ton	3	10	0
Methylated Spirit, 61° O.F.	..	..	..	..	per gallon	0	1	8
Naphtha (Wood), Solvent ..	..	..	..	..	"	0	2	8
" Miscible, 60° O.F.	..	..	..	..	"	0	2	8

Q11 :-

Cotton-seed	per ton	16	0	0
Linseed	per ton	17	0	0
Petroleum, American	per gallon	0	0	7
Stearine	per ton	20	0	0
Phosphorus (yellow)	per lb.	0	2	3
(red)	per lb.	0	2	3
Potassium (metal)	per oz.	0	3	7
Bichromate	per lb.	0	0	4
Carbonate, 90% (ex ship)	per ton	17	15	0
Chlorate	per lb.	0	0	4
Cyanide, 98%	per ton	0	0	0
Hydrate (Caustic Potash) 90%	per ton	24	5	5
" (Caustic Potash) 75/80%	per ton	20	10	0
" (Caustic Potash) 70/75%	per ton	20	0	0
Nitrate (refined)	per cwt.	1	1	6
Permanganate	per cwt.	3	17	6
Prussiate Yellow	per lb.	0	0	5
Sulphate, 90% (ex ship)	per ton	9	13	0
Muriate, 80% (do.)	per ton	8	10	0
Silver (metal)	per oz.	0	2	5
Sodium (metal)	per lb.	0	2	1
Carb. (refined Soda-ash) 48%	per ton	4	15	0
" (Caustic Soda-ash) 48%	per ton	4	5	0
" (Carb. Soda-ash) 48%	per ton	4	0	0
" (Alkali) 58%	per ton	3	10	0
" (Soda Crystals)	per ton	2	0	0
Acetate (ex-ship)	per ton	14	5	0
Arsenate, 45%	per ton	14	10	0
Chlorate	per lb.	0	0	5
Borate (Borax)	net, per ton	19	0	0
Bichromate	per lb.	0	0	1
Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	per ton	9	5	0
" (74% Caustic Soda)	per ton	8	2	6
" (70% Caustic Soda)	per ton	7	2	6
" (60% Caustic Soda)	per ton	6	2	6
" (pure liquor 90° Tw.)	per ton	3	15	0
" 77/78% powdered (99% hydrate)	per ton	13	10	0
Bicarbonate	per ton	8	10	0
Hyposulphite	per ton	5	5	0
Manganate, 25%	per ton	15	0	0
Nitrate (95% ex-ship Liverpool)	per cwt.	0	8	0
Nitrite, 98%	per ton	30	0	0
Phosphate	per ton	12	10	0
Silicate (glass)	per ton	4	10	0
" (liquid, 100° Tw.)	per ton	3	10	0
Stannate, 40%	per cwt.	3	2	9
Sulphate (Salt-cake)	per ton	1	0	0
" (Glauber's Salts)	per ton	1	7	6
Sulphide	per ton	6	15	0
Sulphite	per ton	5	0	0
Strontium Hydrate, 100%	per ton	8	0	0
Sulphocyanide Ammonium, 95%	per lb.	0	0	6
Barium, 95%	per lb.	0	0	4
Potassium	per lb.	0	0	6
Sulphur (Flowers)	per ton	7	10	0
(Roll Brimstone)	per ton	6	10	0
Brimstone: Best Quality	per ton	4	15	0
Superphosphate of Lime (26%	per ton	2	15	0
Tallow	per ton	18	5	0
Tin Crystals	per lb.	0	0	4
English Ingots	per ton	66	10	0
Zinc (Spelter)	per ton	18	0	0
Chloride (solution, 100° Tw.)	per ton	5	2	0

THE HEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices : 32, BLACKFRIARS STREET, MANCHESTER.

508.

SATURDAY, FEBRUARY 13, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Imports and Exports for January .. 125	Trade Notes .. 131
Chemical Industry .. 126	Tar and Ammonia Products .. 132
Latest Complete Speci- .. 127	Report on Manure Material .. 133
Miscellaneous Chemical Market .. 127	The Metal Markets .. 133
Journal of Chemistry .. 128	Liverpool Oil and Colour Market .. 133
American Opinion on the .. 128	Hull Paint, Oil, and Colour Report .. 133
Question .. 128	West of Scotland Chemicals .. 133
Use in Agricultural .. 129	Tyne Chemical Report .. 134
Yottings .. 130	New Companies .. 134
.. 130	Gazette Notices .. 134
Alkali and Bleach .. 131	Imports .. 134
Sugar Prosecution .. 131	Exports .. 137
Bide and Acetylene .. 131	Prices Current .. 140

ADVERTISEMENTS.

IST WANTED.—Chemical Works in London.
ties would be principally in the Laboratory, but it would be essential
ts should have had practical experience as Works Manager.—Reply,
ast experience, and salary required, to "C.C.C.," c/o Clarke, Son, &
cechurch-street, London, E.C.

ED.—Pair of Granite Edge Runners, about
t diameter; Granite bed; all good condition.—Write J. T. Davis,
m-road, London E.

KS MANAGER, Book-keeper, Clerk.—Post
ted by Young Man; experienced in Sizing and other marketable
Fair knowledge of Chemistry and Analysis.—Address, "Works,"
ade Journal Office, Manchester.

ED MAN about 30, with thorough know-
of Sulphuric Acid Making, some experience in Chemical Analysis,
ent of men.—Apply by letter to Spooner and Bailey, Chemical Works,
outhampton.

Notices.

Communications for the *Chemical Trade Journal* should be
and Cheques and Post Office Orders made payable to—
S BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—
"Expert. Manchester."

NATIONAL TELEPHONE 3080.
rms of Subscription, commencing at any date, to the
Trade Journal,—payable in advance,—including postage
of the world, are as follows:—

ly (52 numbers)	12s. 6d.
Yearly (26 numbers)	6s. 6d.
terly (13 numbers)	3s. 6d.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let,
s Wants, and Specific Articles for Sale by Private Contract are
e *Chemical Trade Journal* at the following rates:—

o Words and under	2s. 6d. per insertion
Each additional 10 words	0s. 6d.

ments of Situations Wanted are inserted at one-half the
when prepaid, viz:—

o Words and under	1s. 0d. per insertion.
Each additional 10 words	0s. 3d.

rtisements, Announcements in the Directory Columns, and all Adver-
prepaid, are charged at the Tariff rates, which will be forwarded on

CURRENT TOPICS.

ALKALI AND BLEACHING POWDER.

WITH the appearance of the figures for the exports of
alkali and bleaching powder during 1896, it is perhaps
as well to subject the same to a little analysis, as when com-
pared with the totals of 1894 and 1895, it is possible to gain
a fairly comprehensive idea of the rise and fall of this branch
of the chemical export trade.

America and Russia are certainly of greatest interest in
connection with alkali, especially as Russia seems bent on a
vigorous protection policy, while the United States are
shaping the same way.

The net results of the export trade are of course more
dependent upon prices than quantities, but the latter serve
to indicate the state of the market as regards demand, which
is a point that has lately been the subject of several sinister
reports.

It was recently announced from a responsible source that
our shipments to Russia were declining monthly, but it
would seem from the annual total that there must have been
some misconception. It is true there was a falling-off in 1895
of about 3,500 tons, but last year has shown an increase of
10,000 tons.

Reference has often been made to the imports of alkali
from Germany, but it should be also noted that our exports
in 1896 were considerably higher than in the two previous
years.

The falling-off in the shipments to America have been
very heavy as compared with 1895, as this particular year
actually showed an increase against 1894, thus heightening the
drop. Sweden and Norway, Spain, Holland, and Italy, all
show a decline, but the last three only as compared with
1895.

In the grand total there is a decided diminution, as the
increases are out-numbered by the decreases, but to obtain a
fair estimate the totals for the three years should be con-
sidered, as there was an increase in 1895, as is shown in the
following totals, the actual figures being 5,982,200 cwts. in
1894; 6,248,800 cwts. in 1895; and 4,841,079 cwts. in 1896.

Bleaching powder is truly anything but encouraging, both
the United States and other countries showing an unmis-
takable shrinkage, the corresponding totals being 1,290,700 cwts.
in 1894; 1,412,300 cwts. in 1895; and 1,188,220 cwts. in 1896.

SECRET TRADE COMMISSIONS.

For many years certain branches of the chemical and dry-
saltery trades have suffered very much from the spread of the
system of giving "tips," or as they are now more classically
denominate, secret commissions.

From time to time we have done our best to expose those
instances concerning which we have had conclusive evidence,
as was the case on one or two particular occasions.

We then showed that some of the evil-smelling things connected with the trade were of a moral rather than a material origin.

Subsequently, we have frequently protested against the system as a whole, whenever more slender evidence has given us a *locus standi*.

It is often found that employers wink at such practices, even when they become more or less notorious, owing to the fact that a change for the better would mean a clean sweep in some departments, and entail a certain amount of unpleasantness.

If they only knew how much they lose a year by countenancing the system they would not hesitate to make a move. But although, in connection with the dyeing industry, one or two firms have learnt the lesson, the majority seem content to flatter themselves that they are "not quite so slow as all that," and let things go on in the old sweet way. The unfortunate part of it is that they never do find out how "slow" they have been until too late, and then they abuse their "luck."

One great difficulty in getting to the bottom of these matters is that when something leaks out, there are few who dare tell all they know lest by so doing they should suffer. This is not always because they themselves are to some extent implicated, but because those who can often give the most important clues are frequently underlings, so to speak, and are too fearful of the consequences to say too much—or even enough.

Those who do try to eradicate this evil are prone to be unmindful of the fact that the suspected parties know best who is likely to be "dangerous," and they do not hesitate to take steps early, and do all they can to ensure silence by threats against those under, or co-equal to, them.

It is therefore with exceptional pleasure that we publish in our correspondence columns this week an invitation from the London Chamber of Commerce, to all whom it may concern, to offer in strict confidence any evidence they may have concerning the evils and workings of this cankerous system.

The assurances of indemnification appear to be sound and sufficient, as when necessary it is possible to repose the identity of a communication in the secretary, and him only.

Until the personality of the committee is known, this step might in some cases be desirable. To inspire further confidence, as it were, we hope next week to publish the names of the Special Committee who have this matter in hand, and we trust their endeavours may be crowned with success.

PREVENTION BETTER THAN CURE.

We record this week the presentation of three Royal Humane Society's medals for bravery in rescuing a fellow workman who had been overcome with gas—presumably carbon-dioxide.

Those familiar with cases of this kind, will on reading the account see how near a thing it was that three lives were not lost in trying to save one. It is most gratifying to be able to record a safe conclusion to the incident, but so doing in no way lessens the risk of its being repeated in the future, with a different ending.

It was owing to accidents exactly like this one that we published, last October, an article on "Gassing" and how it may be treated or prevented, and also prepared rules in poster form. Had the necessary muzzle or mask been at hand in this case the whole matter might have been put right in a few moments, and as unconcerned as hauling a man out of a ditch.

There is another question that the incident suggests. One man was unconscious for over 24 hours, after he had

been removed from the poisonous atmosphere. Was it tried as a means of restoration? If its efficacy was doubtful and it was not to hand, there was plenty of time in a day or a night to either procure or make some. The company should be complimented on the happy issue, but they will do well to make better preparation for the future.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

A MEETING of this section was held at the Victoria Hotel, Manchester, on Friday 5th instant. In the absence of the chairman of the Section, Dr. Bowman presided. Mr. E. A. Powell asked whether the paper read before the Section in December was published in the January number of the Society's Journal, while a paper which had never been read appeared. In addition to this, nominally read before the Manchester Section, it had been discussed at the last meeting of the London Section. It seemed very strange that a paper which had never been read, the author not being present, should displace a very important paper which had been read.

The Chairman said he believed Mr. Davis had been in correspondence with the London Publication Committee, and they contended that a *résumé* of Dr. Macadam's paper had been published in Glasgow in the Parliamentary Blue Books. They all knew the Society's rule of priority, and he supposed the Publication Committee were with rights in adhering to it. Mr. Hurst contended that the paper had not been published without anything to indicate that it had really been read before or discussed by the section. The matter dropped.

Mr. Stocks next communicated some interesting laboratory notes. The first was on an improved method of estimating the sulphates in artificial fertilizers. He found that with manures containing free acid the system of extraction with successive quantities of water was not fair. In the case of dissolved bones this method was particularly deceitful. He adopted the method of treating 20 to 30 grams with 4 litres of water (carefully measured) in a bottle containing a number of glass marbles. The bottle was then shaken for 2 or 3 hours, then allowed to settle, and 50 c.c. of the clear solution pipetted off, and H_2PO_4 estimated. As many as 50 samples could be started at once, and he had always obtained very concordant results. He had seldom larger error than 0.15 per cent.

The second matter touched on the estimation of nitric nitrogen in waters. After explaining the drawbacks of most copper cups, he described his own system. An 8 oz. wide-mouthed, stoppered bottle, nearly filled with ordinary granulated zinc which has been coated with copper by immersion in $CuSO_4$ solution. The bottle will then nicely hold 100 c.c. of the water to be tested. Owing to the surface presented the reduction is soon completed. It only takes a few minutes to put up. All cleaning of the surface was avoided, as one he was showing had been in use a year. There was no need of wash, as after shaking well 50 c.c. were taken off and passed through a distilling retort. Within the limits of 0.0863 and 4.18 grains per cent. it was speedy and accurate.

The third note was on a handy ether extractor. It was constructed out of two test tubes and a small flask. It could be used in any laboratory, and was so designed that the solvent acted all the time at the boiling point. The whole was so proportioned that 10 g. of a cotton cake could be extracted with 50 c.c. of solvent in 15 minutes most conveniently and thoroughly.

Lastly, Mr. Stocks described a kind of hot water bath for testing the twisting or softening point of coal tar pitch. Instead of tying the pieces with string to suspend them they were laid on a small shelf of perforated zinc, which engaged with ledges on the sides of a round water-bath, so that it was immersed in the water or steam above the level of the same when applying the twisting force. A thermometer is carried by two standards attached to the dish, so that the main object had been to avoid the loss of time when using wires for suspending the test pieces. He had been able to test 10 samples in 5 hours with the apparatus described. A brief discussion ensued, but as Mr. Stocks had not read his notes, but delivered from memory in a most engaging and entertaining way, it was decided that all the points raised were really answered in the full text notes.

Dr. Gerland then read a paper discussing the merits and demerits of the nitro benzol and hyposulphonic acid methods of extracting indigotine in commercial indigo. He incidentally drew attention to the fact that in his experiments he had found that nitro benzol had a tendency to attack the glass vessels used in analysis, thus introducing a source of error. There was a desultory discussion in which Drs. Knecht and Gerland took part. Mr. Flintoff read a continuation paper on the intensification of indigo.

nents by the addition of albumen. The explanation was thought that the albumen produced an even or glazed surface which it was tended by increased reflection to intensify the shade. The g was well attended, and in many ways one of the most successful sion.

LIVERPOOL SECTION.

he meeting of this Section, on Wednesday, Feb. 3rd, Mr. T. B. B.Sc., read a short paper describing experiments relating to the stric estimation of antimony, and Mr. Frank Tate exhibited a of well-executed lantern slides of fibres and starches, as showing ults obtainable by the use of the Zeiss camera lucida. Subsequently per of Dr. Hurter and Dr. Zahorski on the "Efficiency of an lytic cell," a paper which was read at the January meeting, was t up for discussion. Dr. Hurter himself gave a short *résumé* of revious statements, and added several experimental illustrations. eussion was carried on until a comparatively late hour.

The Patent List.

list is compiled from Official sources in the Manchester al Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally he value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

ising Wood, etc. J. E. Whiting. 1,934. January 25.
ed Manufacture of Coke. W. H. Chambers. 1,935. January 25.
ed Bleaching Compounds. The Aluminium Co., Ltd., and A. G. dock. 1,942. January 25.
ic Acid Engines and Motors. A. Delsemme. 1,972. January 25.
ed Manufacture of Cattle Food Cakes. F. Stacey. 1,991. Jan. 25.
Blowing Machines. M. J. Owens and H. J. Colburn. 2,078. Jan. 26.
ing Wood. C. A. Allison. 2,085. January 26.
for Preserving the Bottoms of Ships. G. L. Burnham. 2,108. ary 26.
ements in the Decomposition of Alkaline Salts by Electrolysis Apparatus therefor. J. Greenwood. 2,207. January 27.
tus for the Purification of Sewage and Impure Waters. F. W. ng. 2,228. January 27.
acle for Safely Storing Calcium Carbide. F. S. Thorn and C. Haddle. 2,231. January 28.
s for Producing Oxalic Acid. G. F. Zacher. 2,308. January 28.
Consuming Device. D. Laurie. 2,343. January 28.
malgam containing Aluminium or Magnesium. H. Wolff. 2,350. ary 28.
ements in the Filtration of Sewage, etc. A. I. and P. A. G. Be'l. 2,354. January 29.
Consuming or Preventing Furnaces. W. Rennie. 2,391. Jan. 29.
ing Aluminium by Electricity. H. J. Sheldon. 2,412. January 29.
ements in Filter Presses. W. H. Wainwright. 2,504. January 30.
tus for Cleaning, etc., Vegetable Fibres. S. Shorter and S. nbridge. 2,549. January 30.
acture of Explosives. M. Bielefeldt. 2,557. January 30.
nery for Treating Vegetable Fibres. R. J. Eke. 2,561. January 30.

EXTRACTS OF LATEST COMPLETE SPECIFICATIONS.

se abstracts are specially prepared for the Chemical Trade Journal, LL RIGHTS of publication are RESERVED. This is the earliest of abstracts of Chemical and allied patents accessible to the

s for the Extraction of Sugar from Molasses and other Saccharine quors by Means of Barium Hydroxysulphide, and the Regenera- n of the latter from the Bye-products produced. W. Feld, nningen a Rhine, Germany. Eng. Pat. 6,508. March 24, 1896.

um saccharate is precipitated with barium hydroxysulphide at a tature of 60° to 100°C. The saccharate is filtered off, suspended er, and decomposed with sulphur dioxide or carbon dioxide, going into solution and barium sulphite being thrown down. A CO₂ is used, the carbonate formed must be converted into le with SO₂. The lye separated from the barium saccharate ns hydroxysulphide. This is decomposed with CO₂, the H₂S given ng burnt to SO₂ and OH₂, and the precipitated carbonate of converted into sulphite with it. As an alternative, the lye is with magnesium sulphate or sulphite. The presence of O₂ in the precipitate causes it to filter badly, so it is carbonated, SO₂ and MgCO₃ filtered off, the latter converted into sulphite, easily dissolved away from the barium salt. The barium sul- and sulphate derived from the lye and the decomposed saccharate ated with charcoal, the melt lixiviated, and the hydroxysulphide rated for use.

Improved Means for Recovering Cyanides from Waste Products in Gas, Chemical, and Iron Works. G. P. Lewis, 2, Florence Villas, Huelva-road, Catford, and F. S. Cripps, 27, Great George-street, Westminster Eng. Pat. 5,184. March 7, 1896.

The waste liquor or devil water from ammonia stills is treated in a tank with sulphurous acid or ferrous sulphate. It then flows through a strainer into a second tank, where it meets with a small quantity of a solution of a copper salt, white cuprous sulphocyanide being precipitated. The reduction with H₂SO₃ is essential. The sulphurous acid is obtained by burning the gases from the saturator, and scrubbing out the SO₂ formed, in a coke-packed tower, down which water is kept flowing. A portion of the saturator gases are passed into a scrubber containing weak ammonia, potash, or soda solution when the correspond- ing sulphhydrate is formed. By means of this the cuprous sulphocyanide is decomposed to form the alkaline compound, sulphide of copper being precipitated. The copper salt can be dissolved in sulphuric acid, and re-used, so that the same amount of copper can be used over and over again. The process when modified is applicable to the liquor from spent oxide.

Improvements in the Preparation of Caustic Soda Solution from Soda Residues. F. J. Seyfried, Kalkerstrasse, Mulheim a/Rhine, Germany. Eng. Pat. 26,889. November 26, 1896.

The dirty red solution produced by lixiviating soda residues is purified by means of hydrated oxide of lead. Two drums of residues are dissolved in a tank of hot water, heated by passing in steam, and the solution brought to a gravity corresponding to 36% or 40%. The liquor is drawn off into another vessel, so as to become partially cooled, and then raised by a steam jet to the topmost of three separate tanks. Nitrate of lead dissolved in hot water and milk of lime are then added, well mixed in, and the whole allowed to settle. The clear, transparent solution of caustic soda, is then decanted. There is one drawing.

Improvements in the Manufacture of Alkali-Cellulose. C. F. Cross, 4, New-court, Carey-street, London. Eng. Pat. 4,713. March 2, 1896.

Instead of mechanically disintegrating the cellulose pulp before treating with alkali, a chemical process is substituted. The pulp is treated in an open vessel for some hours with a 1% solution of hydro- chloric acid solution, or a 2% solution of sulphuric acid. This treat- ment can be carried out in various ways, such as with or without pressure. In any case, the fibre is rendered brittle, and is then washed free from acid, and filterpressed till about 50% of moisture is left in the pulp. The mass is next treated in an edge-runner with caustic soda, so as to give a product containing about 50% cellulose, 10% to 12% of alkali, and 50% to 38% of water. The product is pulverulent, and fit for treating with carbon disulphide to yield the desired sulphocarbonate. The finished material is now generally known as viscose, or viscid, and has industrial applications.

Improved Process for Obtaining Turpentine from Wood and Wood Waste. A. Schmidt, 49, Koelnischestrass, Cassel, Germany. Eng. Pat. 26,015. November 18, 1896.

The turpentine is extracted prior to the usual distillation. The wood, in the form of briquettes, is heated in retorts to 120°C. Dry steam is then admitted through the bottom of the retorts under a slight pressure. The turpentine distills off, and is condensed. The duration of this steaming process is of importance, since it affects the subsequent yield of acetic acid, etc., if too prolonged. An automatic alarm device is therefore introduced, which indicates the moment the turpentine ceases to flow from the condenser. As dry steam is used at 120°C., there is no condensation in the briquettes, and the usual dry distillation can be proceeded with forthwith.

THE TRADE OF THE ARGENTINE.—The following figures afford a comparison of the imports of certain interesting articles during the past 14 years. The figures are the annual average calculated on a period of five years:—

	Annual Average		
	1880-84.	1885-89.	1890-94.
	Tons.	Tons.	Tons.
Sugar	25,600	22,800	17,400
Olive oil	3,300	5,600	4,300
Stearine candles	660	500	245
Coarse salt	33,000	51,000	65,000
Coal	101,000	377,000	543,000
Fencing wire	20,100	26,600	26,800
Iron	19,000	54,000	29,000
Cement	12,000	32,500	23,000
	Hectolitres.	Hectolitres.	Hectolitres.
Kerosene	74,000	144,000	171,000

THE TEACHING OF CHEMISTRY.

SCIENTIFIC V. TECHNOLOGICAL INSTRUCTION.

ABOUT two years ago *The Times* published a letter by Professor Armstrong, in which attention was directed to the very unsatisfactory character of the instruction in chemistry that was being given, under the auspices of the Technical Education Board of the London County Council, to science teachers in schools. The great danger they incurred in setting such an example was dwelt on, and the more desirable direction for the Board to follow was pointed out. The letter had some effect, for after a time a sub-committee was appointed to consider the teaching of chemistry in schools and evening classes. This committee consisted of six members of the Board, besides Dr. Russell, F.R.S. (chairman), Dr. Ludwig Mond, F.R.S., and Professor Ramsay, F.R.S.—three chemists well known, not only in the scientific world—and Mr. C. M. Stuart, head master of St. Dunstan's College, Catford. As Sir Philip Magnus and Professor James Stuart, both members of the Board, were on the committee, and Dr. Garnett, the secretary to the Board, and also Dr. Kimmins acted as its advisers, there was no lack of educational experience; indeed, the committee was an exceptionally strong one. A report signed by the chairman and secretary of the Technical Education Board, embodying the recommendations of this sub-committee, has just been issued. This report, it may safely be said, is destined to mark an era in the "technical" education movement in this country, both because of the example its issue sets to county councils generally, and more particularly on account of the recommendations which are put forward in it. Of all the work hitherto done by the Board, probably none is of more fundamental importance, as it will give help in a direction in which help has long been sorely needed, and of which there was little prospect or hope, and, coming from such a source, the report is a peculiarly valuable contribution to the inquiry which is now being actively prosecuted into methods of education with the object of ascertaining which are the most likely to promote technical progress.

Extracts from the evidence taken by the committee are given in the report. That of Dr. Mond is of the highest value. He gave the opinion that the teaching of technological chemistry in schools or similar institutions was of no value whatever either for chemical industries or for the pupils. He advised that the Board should confine its energies to the teaching of scientific chemistry as an educational discipline, and that special knowledge in chemistry could only be imparted in institutions of University rank, where the student was bound to devote years to thorough study under the guidance of eminent teachers.

Dr. Messel, another German, who is an English manufacturer and also a highly-trained scientific chemist, gave similar evidence. According to this witness, chemical industry on the Continent is ahead of that in this country, because science is accorded a consulting and deliberating voice abroad, and because there are mostly found at the head of affairs people who possess a thorough scientific education. Only a complete training is of value for industrial purposes. To keep abreast of other nations English industries require the services of thoroughly trained men; it must be realised, this witness said, that what creates and maintains the industry of a country is neither capital nor labour, but brains.

Owing to their intimate knowledge of the conditions which prevail in German as well as in English works, the opinions of these two witnesses are invaluable. But Mr. Howard and others expressed similar views. Much evidence was taken by the committee as to the character of the training most suitable for different classes of students, and it is on this subject that they make most important recommendations.

They begin their report with the statement—"We are of opinion that the teaching of chemistry in schools should be solely of an educational nature and should have no reference to practical (*i.e.*, technical) application." Nothing could be clearer, more emphatic, or more in accordance with the opinion of all who have real knowledge of the subject. Among the general conclusions arrived at the following deserve special notice, as they enunciate educational doctrines of startling boldness and breadth in comparison with those now prevailing:—

That as a branch of elementary education chemistry, when properly taught, is a most effective means of cultivating power of observation and accuracy of thought, and consequently it should form a part of school work on account of its educational value, and not because the facts it deals with may be of commercial importance. Further, we are of opinion that even this elementary teaching of chemistry should be largely carried out by means of practical work, the students being induced to form deductions from their own work and to solve problems by actual experiment.

That in carrying out the chemical teaching special attention should at the same time be paid to the writing, spelling, and clearness of expression in all notes and descriptions of experiments, so that the teaching of these subjects may be to a considerable extent interwoven with the chemical teaching.

We are also of opinion that the Board may do great good by enabling scholars who have shown special aptitude for the study of elementary science to continue such studies. We are, however, strongly of opinion that such a selection cannot be satisfactorily made by any ordinary system of examination, but could be made by the head-master or some other officer of the school, who has personal knowledge of the work which has been done during the whole of the scholar's school career. We are much impressed by the evils arising from the too frequent examination of young students.

Passing from the teaching of chemistry simply as an element of education to teaching of it with the special object of fitting a student for taking position in a chemical manufactory, we are convinced that the course should extend over several years and be of University standard; that the manufactory if he is to be efficient and able not only to cope with the accidental difficulties, but also able to improve and extend the manufactory, had experience in original research. Training of this character should, in fact, be given at certain colleges in this country and should be attainable by those who can show that they have special aptitude and inclination for this. We desire to emphasize most strongly this need of the highest chemical education for the technological chemist, and we believe that the employment of chemists educated in the chemical works of this country would prove of great advantage to the manufacturer, but also to the country in general.

If the conclusions of the committee are in any way accepted and carried out within the jurisdiction of the Council, there is no doubt that nothing short of a revolution will be effected, and that it will at last become of some use as an element in our system of technical education. The Technical Education Board have now a great and no light task, and if they are wise their first step should be to appoint an educational council to act as their advisers from those who are acknowledged leaders in such work in London. These must be trained, for there are very few available at present, and nations must as far as possible be put an end to. It is too late to do this now, so the report informs us—of the student evening classes at a number of the chief polytechnics and in the London district should be preparing for the examination in Science and Art Department, knowing as we do the worth of these as tests of ability to do anything rational or useful. We hoped that the Board will take action to encourage the folk to take such an example as that set by the Finsbury Technical College, one of all the institutions where evening classes are held, and to head to examinations. And, having now formally entered the crusade against examinations, the Board are bound to see that those they impose are carried out as efficiently as possible, and so as to do the minimum of harm; for they cannot be necessary as they may be.

Among the recommendations made under the head of in University standard during the day, there is one which is of importance at the present juncture, in view of the possibility of a teaching University in London, viz., the following cannot refrain from observing that the higher technical education in chemistry in London would probably be rendered more accessible if the work of the several institutions in this sphere were better co-ordinated."

The Board are to be highly congratulated on the attitude assumed throughout by their sub-committee, and hoped that they will spare no effort to carry out the recommendations of the report which they have so wisely accepted.—*Times*.

ANOTHER AMERICAN OPINION ON PETROLEUM QUESTION.

MORE EXPOSURES OF THE S. O. C.

SOME time back we published a most interesting communication from America, dealing with the Petroleum Question from an anti-Trust view-point. One of the most honourable advocates of safe oil has now been fortunate enough to obtain the opinion of the Assistant Secretary of the Iowa State Board of Health, which is weighty, as it is naturally based on the principle of Safety and Welfare in accordance with the State motto of *Salus suprema est lex*.

In the course of a most interesting communication, this writer critic says:—"A careful reading of the various steps taken in the past to protect the British people against dangerous oil has led to the conclusion that the main object and purpose is how not to let statements made by some of the alleged experts are simply Take Colonel Majendie, for instance. The Petroleum Commission of 1894 asked Colonel Majendie, 'Have you from your experience opinion to give us with reference to the danger (when the oil is in summer in this country happens to be above 73°, as it often is), of the flashpoint being fixed at that temperature?' answer was, 'Of course, if that was the flashpoint in a closed vessel there would be a great deal to be said on that subject; regard to the fact that it is an artificial flashpoint, if I had created by the gradual accumulation of vapour in a closed vessel I do not think that any anxiety need be experienced in reference to the figure is 73°, whereas the temperature of the air may be 73°. Oil in barrel will not be giving off its vapour at those temperatures; it is only when oil is put into a cup and tested in this way that you get this flashpoint of 73°. The original flashpoint is 100°; and 73° represents, as near as experiments could show, the equivalent of 100°.' Asked if, with a hot oil and an atmosphere of 83°, and bung partly open, did he think it would be danger of fire? he answered: 'No, I do not

exceptional risk. There always is a risk of fire with petroleum." Now, he either knows nothing of the nature of petroleum, or he wilfully states that which he knows to be false. The only question to be considered is what is the safety point for oil as used by the masses in ordinary lamps? This, of course, includes the use of imperfect lamps, negligence in use, etc. These must be taken into account because they are inevitable. In this State (Iowa) we have fixed 105°F. flash test closed (Elliott improved cup). I would prefer 110°F., but 105°F. is far above the atmospheric conditions, the temperature of dwellings, or the temperature of oil in properly constructed and many very poor lamps. This secured, and the danger is reduced to the minimum. *In this matter the cost has no place. It should not be considered at all. It never has been in this country (America).* Of course oil companies and refiners will oppose any and all attempts to restrict their traffic, and will offer all kinds of reasons therefor, and cost is one; but it is all 'huncumbe.' The difference in expense between 73° and 105° oil is a mere bagatelle. *Perhaps in no country was there a more vigorous fight made against an inspection law than was made by the Standard Oil Company in this State of Iowa.* The whole force of their influence and moneyed power was thrown against it, and, as a *dernier resort*, they procured the stealing of the law from the clerk's desk in the legislative chamber a few moments before it was to come up for final passage. All doors in the capital were quickly closed, and vigorous search made for the missing Bill. All business was stopped. It was subsequently found in a remote corner room, where it had been hidden, the taker being unable to get out with it in his possession. This so intensified matters that the Bill received every vote cast.

"Then followed all kinds of devices to defeat inspection by connivance with inspectors, whose removal followed for their wrong-doing. Having general supervision of the whole service on behalf of the State Board of Health, I would not relax one iota, and after three years of fierce opposition, the *Standard Oil Company* succumbed, retired from the field, and acknowledged defeat. Since then they have obeyed the law to the letter. They only ask that all other companies be required to do likewise. I recently saw a letter from the President of that company to all managers and agents, that the law, and every regulation of the State Board of Health of Iowa, must be implicitly obeyed. *We now have no trouble, and no accidents.* No oil below the standard is allowed to be sold or used. If it gets in, it is sent out of the State; hence economy suggests precaution against shipping it in.

"I do not like the Abel cup. The Heumann I like better—I have one. It is nearer the Elliott, which more closely resembles a common lamp. Referring to the open cup, I recall the fact that when the Bill was before our Legislative Committee, the Standard people sent one of their best experts with an open cup to secure its adoption. He and I were testing oil from the same can, he using his cup and I the closed cup. The committee asked him if his cup could be manipulated so as to make a difference of result with the same oil. He replied that there might be a difference of one degree under some circumstances. I at once said, 'I will take your cup and demonstrate here and now a difference of ten degrees.' He refused to accept the proffer. That settled his cup. Subsequently he came to my rooms, and I showed him how it was done."

There is no "shrieking nonsense" about this. State officials who have been cute and persistent enough to defeat the S. O. Co. after a struggle of three years are no mean judges of the Truth, and will have been familiarized with all the possible phases of its antonym.

Will the present Parliamentary Committee—chairman as well—please pay heed to these statements, which are deduced directly from the teachings of an actual and victorious fight for the public safety?

There is nothing about lamps, but the oil is raised to 105° flashpoint, and now there are no accidents. We only want 100° in this country, and seem to have a chance of getting it, but we are now crippled on the question of cost. In the first place, it has nothing to do with the matter, as our American critics aver. Secondly, if the committee will only be kind enough to give a fair and willing hearing to the evidence of those outside the charmed clique that rules the roost, they will be convinced that this cry of cost is indeed the quintessence of "huncumbe."

It will be an everlasting slur on their intelligence if they are lead away by it.

SUFFOCATION BY GAS.—John Craig, labourer, having no fixed place of residence, was recently found unconscious within the gas-heaters situated in the Calder Ironworks, Craig had been prowling around in search of a place to spend the night, and had found his way into this compartment. He had crept close to the gas-pipes, and had in the course of the night been overcome by the fumes. When he was found he was more dead than alive, and but for the efforts of Dr. M'Phail would have succumbed.

TABLES FOR USE IN AGRICULTURAL ANALYSIS.

ALL RIGHTS RESERVED.

(Continued from p. 83.)

IN the accompanying figures we have a continuation of the Potash tables. As in the case of Kainits, it gives the percentages of potassium oxide and sulphate in a potassium-magnesium sulphate, direct from the weight of the precipitate. *Example:*—Supposing the

weight of precipitate found was 0.707 grains, by finding the first two figures in the extreme left-hand column and the third place of decimals in the horizontal column we find 27.26 % K_2O and 50.38 % K_2SO_4 .

TABLE FOR POTASH-MAGNESIA SULPHATE SHOWING % K_2O AND K_2SO_4 FROM GRMS. K_2PtCl_6 .
(OBTAINED FROM 0.5 GRM. SAMPLE.)

Gram Ppt.	000	001	002	003	004	005	006	007	008	009
	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4	K_2O K_2SO_4
	%	%	%	%	%	%	%	%	%	%
55	21.21 39.19	21.24 39.26	21.28 39.33	21.32 39.40	21.36 39.48	21.40 39.55	21.44 39.62	21.48 39.69	21.51 39.76	21.55 39.83
56	21.59 39.90	21.63 39.91	21.67 40.05	21.71 40.12	21.75 40.19	21.78 40.26	21.82 40.33	21.86 40.40	21.90 40.47	21.94 40.54
57	21.98 40.62	22.01 40.69	22.05 40.76	22.09 40.83	22.13 40.90	22.17 40.97	22.21 41.04	22.25 41.12	22.29 41.19	22.32 41.26
58	22.30 41.33	22.40 41.40	22.44 41.47	22.48 41.54	22.52 41.61	22.55 41.68	22.59 41.76	22.63 41.83	22.67 41.90	22.71 41.97
59	22.75 42.04	22.79 42.11	22.82 42.18	22.86 42.25	22.90 42.33	22.94 42.40	22.98 42.47	23.02 42.54	23.06 42.61	23.09 42.68
60	23.13 42.75	23.17 42.82	23.21 42.90	23.25 42.97	23.29 43.04	23.33 43.11	23.37 43.18	23.40 43.25	23.44 43.32	23.48 43.39
61	23.52 43.47	23.56 43.54	23.60 43.61	23.63 43.68	23.67 43.75	23.71 43.82	23.75 43.89	23.79 43.96	23.83 44.04	23.87 44.11
62	23.91 44.18	23.94 44.25	23.98 44.32	24.02 44.39	24.06 44.46	24.10 44.54	24.14 44.61	24.17 44.68	24.21 44.75	24.25 44.82
63	24.29 44.89	24.33 44.96	24.37 45.04	24.41 45.11	24.44 45.18	24.48 45.25	24.52 45.32	24.56 45.39	24.60 45.46	24.64 45.53
64	24.68 45.61	24.71 45.68	24.75 45.75	24.79 45.82	24.83 45.89	24.87 45.96	24.91 46.03	24.95 46.11	24.98 46.18	25.02 46.25
65	25.06 46.32	25.10 46.39	25.14 46.46	25.18 46.53	25.22 46.60	25.26 46.67	25.29 46.75	25.33 46.82	25.37 46.89	25.41 46.96
66	25.45 47.03	25.49 47.10	25.52 47.17	25.56 47.25	25.60 47.32	25.64 47.39	25.68 47.46	25.72 47.53	25.76 47.60	25.79 47.67
67	25.83 47.74	25.87 47.81	25.91 47.88	25.95 47.96	25.99 48.03	26.03 48.10	26.06 48.17	26.10 48.24	26.14 48.31	26.18 48.38
68	26.22 48.45	26.26 48.53	26.29 48.59	26.33 48.67	26.37 48.74	26.41 48.81	26.45 48.88	26.49 48.95	26.53 49.02	26.56 49.09
69	26.60 49.17	26.64 49.24	26.68 49.31	26.72 49.38	26.76 49.45	26.80 49.52	26.83 49.59	26.87 49.67	26.91 49.74	26.95 49.81
70	26.99 49.88	27.03 49.95	27.07 50.02	27.10 50.09	27.14 50.16	27.18 50.24	27.22 50.31	27.26 50.38	27.30 50.45	27.34 50.52
71	27.37 50.59	27.41 50.66	27.45 50.73	27.49 50.81	27.53 50.88	27.57 50.95	27.61 51.02	27.64 51.09	27.68 51.16	27.72 51.23
72	27.76 51.31	27.80 51.38	27.84 51.45	27.88 51.52	27.92 51.59	27.95 51.66	27.99 51.73	28.03 51.80	28.07 51.87	28.11 51.95
73	28.15 52.02	28.19 52.09	28.22 52.16	28.26 52.23	28.30 52.30	28.34 52.37	28.38 52.44	28.42 52.52	28.46 52.59	28.49 52.66
74	28.53 52.73	28.57 52.80	28.61 52.87	28.65 52.94	28.69 53.01	28.73 53.09	28.76 53.16	28.80 53.23	28.84 53.30	28.88 53.37
75	28.92 53.44	28.96 53.51	29.00 53.58	29.03 53.66	29.07 53.73	29.11 53.80	29.15 53.87	29.19 53.94	29.23 54.01	29.27 54.08
76	29.30 54.16	29.34 54.23	29.38 54.30	29.42 54.37	29.46 54.44	29.50 54.51	29.54 54.58	29.57 54.65	29.61 54.72	29.65 54.80
77	29.69 54.87	29.73 54.94	29.77 55.01	29.81 55.08	29.84 55.15	29.88 55.22	29.92 55.29	29.96 55.37	30.00 55.44	30.04 55.51
78	30.07 55.58	30.11 55.65	30.15 55.72	30.19 55.79	30.23 55.86	30.27 55.94	30.31 56.01	30.34 56.08	30.38 56.15	30.42 56.22
79	30.46 56.29	30.50 56.36	30.54 56.44	30.58 56.51	30.62 56.58	30.65 56.65	30.69 56.72	30.73 56.79	30.77 56.86	30.81 56.93

(To be continued.)

Parliamentary Jottings.

CORDITE EXPERIMENTS.

In the House of Commons on Monday Mr. Tatton Egerton asked the Under War Secretary who was responsible for such dangerous experiments as the explosion of large quantities of cordite at Woolwich that took place there and was recorded in the daily papers, and what compensation would be granted for the serious damage caused.

Mr. Powell Williams said the experiment was made for a special purpose, which he had explained already in answer to a question. It was under the superintendence of the Ordnance Committee, on a site selected in Plumstead, where no risks were likely to occur. Proper precautions were taken, and no complaints were received at the War Office. Reports as to the damage done appeared to have been much exaggerated.

NEW BILLS.

Leave was given to introduce the following new Bills, which were subsequently brought in and read a first time:—

Mr. Boscawen (Kent, Tunbridge).—Bill to amend the law with respect to the use of locomotives on highways

Mr. Bill (Staffordshire, Leek).—Bill to amend the law for the administration of highways.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

STORAGE OF CALCIUM CARBIDE.

(To the Editor of the Chemical Trade Journal.)

The Palatine Insurance Co., Ltd.,
32, Brown-street, Manchester.

SIR,—In answer to your letter of the 5th inst., as a member of the Fire Offices' Committee I cannot of course enter into any correspondence in a newspaper respecting the views expressed by the Committee upon the question of calcium carbide and acetylene, but I am quite sure that if those interested in the matter have anything new to advance which will be calculated to lessen the fire hazard, every consideration will be given to communications from them if addressed to the Secretary of the Committee, 63, Watling-street, London.—Yours, &c.,

9th February, 1897.

J. N. LANE, General Manager.

(To the Editor of the Chemical Trade Journal.)

SIR,—We read with pleasure your excellent article in your last week's number about the storage of calcium carbide and acetylene.

Will you kindly permit us to add that on the Continent there is no difficulty in conveying calcium carbide. The State railways, as well as the private railways, convey the article in ordinary trains, goods or passenger, and even the postal authorities allow the article to be sent by parcel post!

We hope the present restrictions will soon be waived by the Fire Office Committee.—Yours, &c.,

DOMETIER AND CO.

(To the Editor of the Chemical Trade Journal.)

The London Chamber of Commerce,
Botolph House, Eastcheap, London, E.C.

SIR,—I am much obliged to you for your favour of yesterday, calling my special attention to the article on this subject in your issue of this date.

I have already received some communications in regard to the matter, and these and the article in your paper will be laid before the next meeting of the chemical trade section.—Yours, &c.,

6th February, 1897.

KENRIC B. MURRAY, Secretary.

SECRET COMMISSIONS.

(To the Editor of the Chemical Trade Journal.)

The London Chamber of Commerce.

SIR,—I am directed to inform you that the Council of this Chamber has recently appointed a Special Committee (with power to add to their number) to inquire into and report upon the subject of the pernicious practice of giving and receiving secret trade commissions.

A preliminary meeting was held on the 2nd inst., when Mr. David Howard, one of the vice-presidents of the Chamber, was elected chairman, and Mr. Walter Hazell, M.P., deputy chairman.

In order that the Committee may have the fullest information before it, I am desired to make it known through the medium of your valuable

columns that the Committee are willing to receive and confidentially any evidence or information on the subject which may be disposed to bring before it.

I am further desired to invite confidential communications addressed to me by letter, or to be made to me verbally, before the Committee, and to say that no communication or information will be given to the Committee without the previous consent partly forwarding the same.

I have also to add that any communications or information may be given to me will be treated in the strictest confidence names or particulars will, unless authorised, be allowed to even in Committee.—Yours, &c.,

January 5th, 1897.

KENRIC B. MURRAY, Sec.

HEAT-RESISTING GLASS CEMENT.

(To the Editor of the Chemical Trade Journal.)

SIR,—I think it is your kind custom to insert queries on chemical subjects in your paper. I should be glad to know position and mode of preparation of a substance which will to glass and resist heat, so that on heating, the pieces become unfastened. If any of your readers can help me I am obliged.—Yours, &c.,

[We think our correspondent should find help in one of the published Recipe Books, but any answers sent to the Journal will be forwarded.—ED. C.T.J.]

SULPHATE OF AMMONIA.

(To the Editor of the Chemical Trade Journal.)

SIR,—To the numerous reports of meetings of societies appeared in your valuable Journal calling attention to the position of sulphate of ammonia in regard to nitrate of soda, I am glad to see that a discussion took place in November last at the meeting of the Manchester Institute of Gas Engineers should be added. I have reported it, but if so it has escaped my notice, and I on the matter to emphasise how general is the outcry and how seems to be in coming. Nevertheless, in these discussions is given to ideas that, though not bearing immediate fruit eventually lead to important results. An idea of this character to be that of Mr. James O'Sullivan, given in the report of the Nottingham section of the Society of Chemical Industries held at Burton-on-Trent, which appears in the current number of your Journal. Mr. O'Sullivan said "it struck him that the great spread of the use of sulphate of ammonia was its name carries the idea of nitrogen to the ordinary man's mind sulphate does not. If it could be re-christened so that the name convey this idea it might be a good thing." Presiding at the time I joined in the smile evoked by the suggestion, but, the matter over, I was struck with its great force, so that, though in jest, it soon became to me a true word. In accordance with the idea I would propose that sulphate of ammonia should, for all purposes, be known as NITROGENOUS SULPHATE, which the farmer will not be able to say that he is in any way misled, a substance that contains upwards of 25% more nitrogen than soda, and which is besides the richest nitrogenous manure and surely entitled to be so called.

When one considers how successful the application of names has been in other departments of industry and of commerce, it must be admitted that the neglect of sulphate of ammonia, nearly 21½ per cent. of nitrogen, for nitrate of soda, which contains 16½ per cent., may be due to prejudice that only a name can remove.

The Fertilisers and Feeding Stuffs Act makes no difference in the unit of nitrogen present in sulphate of ammonia and that of soda. Clearly this fact might be used with power by the farmer to convince the farmer how great is his loss. Were the Government to keep silence, but as the whole community is interested, not only by the enormous sums that are sent abroad for fertilisers when a better one is made at home, but also by the fact that it is dearer; by tending to create depression in the iron trade, causing injury to the great Scottish oil industry, the case calls for combined action. In this spirit I trust you will kindly give your powerful help to this national cause, hoping that the publication of this letter may incite gas authorities, ironmasters, and manufacturers interested in sulphate of ammonia to adopt the name "Nitrogenous Sulphate," which must increase its sale among farmers, and thus gradually rectify the anomaly of sending our sulphate abroad, and bringing nitrate from South America to its place.—Yours, &c.,

F. J. R. C.

Sharon Chemical Works, Derby, February 9th, 1897.

EXPORTS OF ALKALI AND BLEACH.

Following returns, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and alkali and bleaching materials shipped to the undermentioned for the year ending December 31st, 1896:—

ALKALI.

Port.	1895.	1896.	1895.	1896.
	Cwts.	Cwts.	£	£
.....	194,800	216,569	62,084	64,030
and Norway	149,500	117,523	30,929	24,162
.....	110,000	130,064	32,249	34,867
.....	130,400	119,697	24,662	23,268
.....	43,300	51,088	15,262	18,330
d Canaries	320,200	309,025	110,218	107,327
.....	233,500	228,572	72,681	66,854
ates	3,524,400	2,217,602	769,644	493,933
ia	189,300	218,159	55,983	67,406
orth America ..	215,400	206,158	54,377	50,390
untries	1,138,000	1,026,222	329,444	291,461
l	6,248,800	4,841,079	1,557,533	1,242,028

BLEACHING POWDER, ETC.

Port.	1895.	1896.	1895.	1896.
	Cwts.	Cwts.	£	£
ates	891,300	744,025	317,089	253,663
untries	521,000	444,195	183,628	152,883
l	1,412,300	1,188,220	500,717	406,546

UM CARBIDE AND ACETYLENE NOTES.

Investigation into the properties of commercial calcium carbide, MM. L. Bullier and Ch. de Perrodel, shows that this material contains two classes of impurities, viz., those which are practicable, and those likely to cause contamination in the acetylene produced by the action of water in the carbide. Amongst the subliming under the first mentioned head may be noted graphite, and silicides of carbon, metallic silicates and fragments of carbides in an excess of the metal. In the second class are included an sulphide having the formula Al_2S_3 , which is only formed at temperatures. In the presence of water it is decomposed, and to sulphuretted hydrogen. Certain metallic nitrides are also small quantities, which react with water to form ammonia, fortunately is so very soluble that it can readily be washed out of the gas produced from the calcium carbide at the same time. Compounds of phosphorus are also produced which react with form gaseous compounds. These, on burning, give rise to the phosphorus. According to a report prepared by Professor Wes for the Acetylene Illuminating Company, Limited, pure has no appreciable action on brass or copper, the dangerous acetylide being formed only in the presence of moisture and

The gas prepared from calcium carbide contains, he states, 2% of impurities, and has an illuminating power of fifteen to that of ordinary coal gas. The poisonous properties of have been found to be less than those of ordinary coal gas.

INTERESTING SUGAR PROSECUTION.

(Concluded from page 113.)

North London, Mr. Bros was again engaged in hearing the case of the Islington Vestry v. Shrimpton, the prosecution under the Food and Drugs Act, for selling beet crystals as sugar. Mr. Bramall again appeared for the Vestry, and Lord defended. Evidence of retailers was now called for the case. Mr. John Williams, of the firm of Williams Brothers, grocers, New North-road, said that he had had 33 years' experience in the trade. He took "Demerara" to mean no more than was the description "Bath bun." The latter might be made of sugar, so might the article which the public knew as Demerara. On cross-examination, the witness said if he ordered Demerara at a wholesale house he should expect to be supplied with a grade of Demerara. Some of his customers insisted on having Demerara or West Indian sugar, and when they asked for it they were told with it, but the very great majority, whether they asked for Demerara or not, preferred the bright yellow crystals. Similar evidence was given by Mr. Abel Frith, grocer, of New North-road,

and by Mr. Shrimpton, the defendant in this test case. Mr. Quintin Hogg, sugar grower of London and Demerara, was re-called to rebut the evidence which had been given by the chemists and experts who had been called for the defence. In giving his decision, Mr. Bros said it had been very strongly urged that prejudice to the purchaser could not be proved, because the article supplied was alleged to be superior to the article asked for. The question for him to consider, however, was not whether the article was superior to the article asked for, but whether it was of the same nature, substance, and quality. Though the article might be of the same nature and quality, it clearly was not of the same substance. In the one case it had been shown that the Demerara sugar must contain a small amount of molasses, while it would be impossible for molasses to be left in the best sugar. Here clearly was a difference. On the other hand, the white crystals of the beet were dyed. The question arose, why were they dyed? It was said that the dyeing was resorted to to please the public. But the crystals were dyed the beautiful yellow colour that was found in the best samples of Demerara sugar. Clearly the dyeing was resorted to to make the beet crystals represent the Demerara crystals. Under those circumstances he thought the complainants had made out their case, and the defendant must be convicted. It was really a trade dispute and a matter for a small penalty. He must impose a fine of 10s. 6d., with £8. 8s. costs.

IMPORTS AND EXPORTS FOR JANUARY.

THE Board of Trade returns for the last month are not very satisfactory, but there is a day less in the month this year. There is a decrease in the value of the imports of chemicals and oils, but wood pulp and esparto have increased. In the exports alkali and bleach are still low, and the values of painters' colours, seed oils, and soap are less. The quantities of chemical manures and salt show an advance.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1896.	1897.
Margarine	Cwt. 81,128	76,901
Copper Ore and Regulus	Tons. 13,822	7,280
Pyrites	" 54,487	45,956
Tin	Cwt. 64,562	46,510
Alkali	" 8,977	25,237
Brimstone	" 35,875	28,192
Dyes, Coal Tar	£. 62,337	52,169
Saltetre	Cwt. 19,564	28,666
Petroleum	Gall. 17,176,225	13,240,569
Turpentine	Cwt. 69,362	40,114
Guanine	Tons. 870	1,510
Nitrate of Soda	" 7,864	7,784
Paraffin	" 67,783	62,679
Rosin	Cwt. 211,820	250,780
Tallow and Stearine	" 206,994	189,386
Oil Seed Cake	Tons. 30,527	26,546
Wood Pulp	" 21,170	38,035

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1896.	1897.
Alkali	Cwt. 469,467	327,804
Cement	Tons. 26,612	27,645
Coal and Coke	" 2,789,938	2,763,954
Copper, all kinds	Cwt. 104,158	55,891
Iron and Steel	Tons. 227,607	246,996
Chemical Manures	" 29,685	32,846
Oils, seed	" 4,007	4,451
Salt	" 38,301	54,859

FATAL EXPLOSION AT A CHEMICAL WORKS.—An alarming accident happened at the works of the Cheshire Alkali Company, Middlewich, early on Tuesday morning. An "ammonia still" exploded with great force, and Richard Griffiths, aged 25, labourer, who was close by at the time, was killed instantly. He leaves a widow and one child.

NEW EXPLOSIVES COMPANY.—The net profit of the New Explosives Company for the past year, including £2,917 brought forward, amounted to £7,072. A dividend of 4 per cent. is proposed, which will leave £3,472 to be carried forward. The erection of the new works has been delayed owing to opposition by local authorities, but these objections have been overruled.

Trade Notes.

SOCIETY OF CHEMICAL INDUSTRY.—London Section.—An extra meeting will be held on Monday, February 15th, at 8 p.m., in the Chemical Society's Rooms, Burlington House. Business: Adjourned discussion on Mr. W. J. Dibdin's paper on "The Character of the London Water Supply."

NITRATE STATISTICS.—The Permanent Nitrate Committee's public statistical circular for February gives the total export of nitrate of soda to Europe during January as 1,262,000 qtls.; loading for Europe 1st February, 641,000 qtls.; imports to Europe during January, 85,410 tons; deliveries in Europe during January, 48,145 tons; visible supply to Europe 1st February, stocks and afloat, 695,895 tons.

PETROLEUM AND NAKED LAMPS.—At the Liverpool Police Court, recently, Captain Anderson, of the steamer *Potomac*, was fined £10 and costs for suffering seven naked oil lamps to be used on board his vessel while laden with petroleum in the Herculaneum Branch Dock. "[We thought this wonderful petroleum was safe, and only the lamps at fault. If it is not safe when cold in a vessel, what is it when heated by burning in a lamp?—ED. C. T. J.]

THE PURE BEER COMMITTEE.—The Departmental Committee appointed to inquire into the nature of the ingredients used in the manufacture of beer have resumed their sittings, under the presidency of the Earl of Pembroke. Evidence was given by the following gentlemen, representing the Central Chambers of Agriculture:—Mr. H. Le Roy Lewis (Hampshire), Mr. C. Middleton (Yorkshire), and Mr. O. D. Johnson (Suffolk). The committee sat in private.

DANGEROUS TRADES.—The Dangerous Trades Committee were sitting at the Home Office all last week. It is understood that the topics of their enquiry have included the conditions of labour in flour mills, the galvanised iron industry, sole-stitching by American machinery, and the glass-polishing industry. During their recent visit to South Wales the committee inspected the use of converters in steel-works. The centre of that inspection was Cardiff. The next visit of inspection will be paid to Birmingham, and the second report of the committee will be ready in June.

THE GAS LIGHT AND COKE COMPANY.—The report for the half-year ended December 31st, 1896, shows that after providing for all fixed charges there is a balance of £417,934. The directors recommend a dividend at the statutory rate of 12½ per cent. per annum, carrying forward £45,748. There has been an increase in the sale of gas during the past half-year, the total quantity sold being 10,263,000,000 cubic feet, or 809,000,000 more than in the December half-year, 1895. The quantity of gas sold in the year 1896 was the largest on record—20,116,000,000 cubic feet—and exceeded the quantity sold in 1894 by 1,874,000,000.

THE TEXAS SULPHUR DEPOSITS.—The U.S. Sulphur and Chemical Company, organised to work the Texas sulphur deposits, is capitalised at \$500,000. The capital is payable in gold. It is the intention of the company to give the consumers of brimstone an interest in its properties, the exploration of which, so they state, promises to attain large dimensions. The company will accept at any time its first mortgage bonds in payment for its sulphur. In its prospectus the company states that sulphur ores containing 32,000 tons of pure sulphur are actually in sight, ready for immediate reduction and disposal, its value exceeding the amount of capital stock and bonds. The prospectus states that after paying interest on its bonds and setting aside \$11,000. each year for redemption of bonds, there should be a profit of \$103,000. per annum on a business of 1,000. tons of brimstone a month.

PATENT VICTORIA STONE CO. LIMITED.—The directors, in their report for the year ended December 31st last, state that the net profit for the year after making the usual provision for depreciations of plant, &c., amounts to £9,779, to which must be added the balance brought forward of £3,963, making a total of £13,742. Out of this sum the directors propose to pay a dividend of 5 per cent., free of income tax, which, with the interim dividend paid in July last, will make 10 per cent. for the year, leaving the sum of £3,773 to be carried forward. The directors have to report the purchase of five acres of land at Groby for the erection of cottages for the company's workmen. They have also acquired the sole agency of the National Opalite and Glazed Brick and Tile Syndicate Limited, in two of the principal counties in the Midlands. Notwithstanding the large increase of business, the stock of manufactured stone has been diminished very slightly. The company are thus in the same commanding position as they were last year with respect to the execution of orders with well-seasoned stone. The directors have decided to call up the balance of the capital, viz., £20,000. The new shares will be offered *pro rata* to the existing proprietors at par. The first call of £1 per share will be payable April 1st.

BRUNNER, MOND'S DIVIDEND.—The directors of Messrs. Brunner, Mond and Co. have resolved to declare an interim dividend half-year ended 31st December last of 7 per cent. on preference on fully-paid ordinary, and 7s. on partly-paid ordinary shares.

THE AMERICAN ANTI-TRUST MOVEMENT.—The anti-trust campaign has been opened before the Special Committee of the N. State Legislature. The attack began on the sugar trust. Lenow, the ardent reformer, is chairman of the committee showing already that he means to make the inquiry thorough.

A BRAVE TRIO.—At Queen's Ferry, on Tuesday, three men, Thomas Massey, Peter Hughes, and George Nickols were p with certificates and medals of the Royal Humane Society, spicuous bravery last December. Two men were repairing a pitch still at Messrs. Joseph Turner and Co.'s chemical works, Ferry, when one of them, named Shaw, fell in. Hughes volunteered to go in to bring him out, but he did not make an appearance overcome by poisonous gas. Nickols went in after him, but a befel him, and finally Massey, after taking the precaution of a rope to his body and covering his mouth and nostrils, entered still, and with great difficulty brought out the three unconscious of his fellow-working men. Nickols and Hughes soon revived, but Shaw was unconscious for over 24 hours.

GAS LIGHT AND COKE CO. AND RESIDUALS.—In their report the Company state there had been a very large manufacturing gas during the past six months—an increase of 75 per cent. on the corresponding period of 1895; and one of the great advantages of them, at a time like the present, was that not only no coke produced they used a large quantity of this residual for this process. The of coke thus taken off the market in the past six months had been tons. As regarded tar products, the market was not quite so good had been in the past two half years, but still it continued satisfactory net yield per gallon of tar to the company amounted to 1s 6d., figure they thought would probably be maintained. Sulphate of had a very dull market, and the yield of revenue per ton of again lower; but in the past two months business had been rather higher prices. With reference to the whole question of they could console themselves with the reflection that, allowing ing conditions, they had done as well as anyone else.

NITRAGIN TRIALS.—At the annual meeting of the Agricultural Society, recently held at the society's rooms in the borough, the chemical committee reported that it had been determined to try the effect of nitragin, a substance manufactured in Germany, which contained the microbe that was instrumental in causing the nodules upon the roots of leguminous plants, and to the power which in the soil the power which leguminous plants possess of assimilating the free nitrogen of the air is attributed. Samples of nitragin will be applied, in various parts of the country, to the crop, the bean crop, and to vetches. The experiment at Market salt was determined the usefulness or otherwise of salt as a means of preventing the lodging of wheat had not been so successful as was anticipated. Salt was applied to a ten-acre field, upon areas of one acre duplicate, at three different periods—viz., during the winter before sowing, and as a top-dressing. Unfortunately, the storms of wind and rain laid nearly the whole area flat, but it was noticed that the areas which stood longest were those to which had been applied during the winter.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways of foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed Money Order* is the most satisfactory method of remitting, both for them and ourselves. In the Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in transmitting acknowledging foreign remittances is inevitably entailed in this method.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are lower, 90's now being quoted 3s. 2d. and 50/90's. Carboic acids are quiet, and without change in price. Naphthalene about the same—solvent is quoted 1s. 7d. in certain localities. Oils and creosote present nothing fresh that calls for comment. Oil and salt are a fraction down from last week. Pitch is very 24s., f.o.b. East Coast, while anthracene is quiet.

Sulphate of ammonia has been suffering from a further fall in values. Makers are not offering very freely, but dealers are doing their best to "cover" at the present juncture. Clois

London outside makes £7. 15s., Liverpool £7. 15s., Hull £7. 15s., and Leith £7. 13s. 9d., all prompt. For May-August is named at £7. 12s. 6d.

MISCELLANEOUS CHEMICAL MARKET.

The alkali trade there appears to be a slight relapse from the which has latterly prevailed in general export business, and demand is also, if anything, quieter again. Caustic soda has a tendency, though without quotable change, and prices are, f.o.b. Liverpool, as follows:—77%, £9. 5s.; 74%, £8. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. per ton, 10-ton lots upwards. Ammonia alkali, £3. 7s. 6d., bags, f.o.r. makers' for home trade, and for export £2. 10s. to £3., f.o.b. Soda and bicarbonate unaltered. Chlorate of potash and soda are easier at 4d. and 5d. per lb. respectively, though even lower have been mentioned for forward delivery. Bleaching powder in price, and moving steadily at £6 10s., f.o.r., and £6. 15s., at usual ports of shipment. Recovered sulphur strong at 8s. 6d., f.o.r. Trade in vitriol and muriatic acids continues and takes off all supplies at full prices. Sulphate of copper has little in price, nearest quotations being £19. to £19. 5s., f.o.b. a good spot demand for potash, caustic and carbonate, at full prices.

Brown acetate of lime is steady, meantime, at the recent price; grey quiet, but price unchanged. White sugar of lead, in make, has been advanced to £23., c.i.f. Brown sugar of lead, 85%, c.i.f. Nitrate of lead also dearer at £19 per ton. Price of powdered arsenic, with continued scarcity of supply, has again advanced, and £24. 10s. to £25. is now asked for March-April. Nitrate of potash quiet at 5d. per lb. Cyanide 11½d. per lb. Nitrate of soda slightly easier at 8s. 1½d. Ammonia salts dull and without alteration in value. There are reports as yet to indicate any improvement in general demand.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at £40s. Middlesbrough 40s. 5½d. cash, and hematite 50s. 1½d. cash; firmer: Chili bars, G. O. B.'s and G. M. B.'s, closed at £18. 3d. to £51. 6s. 3d., cash, and £51. 8s. 9d. to £51. 13s. 6d. three months. Tin, steady: Straits closed at £61. 6s. 3d. to £61. 6s. 3d., cash, and £61. 18s. 9d. to £62. 8s. 9d. three months; tin, £62. 16s. 3d.; English ingots, £65. 10s. to £66. 10s. Lead: Spanish, £11. 13s. 9d. to £11. 15s.; English, £11. 15s. to £11. 15s. Silesian spelter, ordinary, £17. 15s. Nickel, 1s. 2½d. to 1s. 3d. Quicksilver: First hands, £6. 17s. second hands, £6. 16s. 6d. Copper shares, steady: Cape, 2½d. to 2½d.; Libiola, 2½d. to 2½d.; Masonry, 2½d. to 2½d.; Rio Tinto, 27½d. to 27½d.; Tharsis, 6½d. to 6½d.

GLASGOW, WEDNESDAY.—Market flat, but a good business. done at 47s. 3½d., 47s. 3d., 47s. 4½d., and 47s. 1½d. cash; 47s. 6d., 47s. 6½d., and 47s. 4d. one month; buyers, 47s. 1d. sellers, 47s. 2d. Cleveland done at 40s. 5½d. cash, and 40s. 8d. 8½d. one month; buyers, 40s. 5½d. cash; sellers, 40s. 6d. Cleveland hematite done at 50s. 2d. cash; buyers, 50s. 1½d. cash. Middlesbrough hematite done at 49s. 9d. 13 days, and 49s. 8½d. one month; buyers, 49s. 5½d. cash.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil is quiet and unchanged in price, further sales being done on the same terms as recorded last week. There is a good demand for olive. Prices are strong and stocks are getting reduced. There is no change in linseed, Liverpool makes remaining steady at 17s. 6d. per cwt., in export casks. With regard to cottonseed, not much to be said; prices are 15s. 6d. to 16s. 3d. for Liverpool, and are now firmly held at these prices. Castor keeps steady, and there is more inquiry, although the price remains 3d. for second seconds Calcutta, and 2½d. per lb. for first pressure French. Market for tallow is quiet and unchanged. Resin shows no change in prices, and is fairly well inquired for in all grades. Spirits continue to move fairly at 21s., spot, the market being firm. Petroleum remains featureless; price for American is 63½d. per gallon, and Russian refined 53½d. per gallon.

COLOURS.—Prices are steady, and practically without change. Oxfordshire, common, £10., medium, £12., best, £15. Oxfordshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, second, 50s., and common, 18s.; Irish, Devonshire, 40s. to French, J.C., 65s. Umber: 40s. to 45s. White lead, £16. and unchanged. Venetian red, £6. to £10. Cobalt: Pre-oxidized, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, sodium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

REPORT ON MANURE MATERIAL.

There continues to be a very quiet market, without any encouraging feature in any department. Quotations for mineral phosphates are unchanged, and only Continental buyers are interested for the present. For River Plate bones, too late for the coming season, £3. 15s. or less would now be taken, but for anything near at hand £3. 17s. 6d. would probably be about the value. There has been more doing in Bombay bone meal, occasioned no doubt by the stoppage of shipments, but sellers have not been able to get over £3. 15s. per ton on spot. Nitrate of soda is unchanged at 8s. 1½d. per cwt. for good up to 8s. 3d. per cwt. for fine quality.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The market values ruling now are much the same as a week ago, after many ineffectual attempts for a rise; still there appears to be a general impression that prices are to advance. Yet there is a brave man who speculates upon the chances, and there are some, for oil is being warehoused, no doubt in anticipation of the paucity of supply of linseed from East India and the disorganisation of shipping owing to the plague. The imports here have been to date:—Linseed, 51,646 qrs., against 57,456 qrs.; rapeseed, 6,532 qrs., against 4,960 qrs. a year ago; cottonseed, 19,923 tons, against 25,789 tons; oilcake, 807 tons, against 1,931 tons; olive oil, 284 tons, against 479 tons. Linseed oil is quiet. Spot, 14s. naked; forward February-April, 14s. 4½d.; May-August, 15s. 1½d., boiled and refined £1. to £2. per ton extra. Cotton oil is firmer; spot naked, 13s. wanted; forward February-April, 13s. 3d.; May-August, 14s.; filtered refined is £1. per ton extra; ordinary casks £1. and barrels £1. 10s. per ton extra. Castor oil remains very firm. Olive oil unchanged. Green olive oil soaps, 60% fatty acids, £16. per ton c.i.f. Hull; oleins unchanged; Yorkshire brown grease firm, £8. to £9 per ton f.o.b. Hull; Danish butter, 112s. to 115s. per cwt.; finest colonial, 100s. to 106s. per cwt.; finest Hamburg, 96s. to 100s. per cwt.

CAKES.—More business moving, but prices unmoved. Linseed cakes quiet; 95% pure, £6. 10s.; oilcakes, £5. 10s.; Russians, £6. 7s. 6d. Cotton cakes fairly steady; best makes, £3. 17s. 6d. to £3. 18s. 9d. Rape cakes (Black Sea), £3. 7s. 6d. per ton.

PAINTS.—The season holds out promise of good business in these articles, and at the moment makers continue busy. Prices are:—Leads unchanged; dry mineral colours, £3. to £8. per ton. Ordinary colours in oil can now be bought very cheap, from £9. per ton upwards. Paint remover, 25s. to 30s. per cwt.; imperial black varnish, £5. 10s. per ton in barrels; oak varnish, from 5s. 6d. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The American-induced drop in solid paraffins (referred to here last week) has been sadly confirmed for the Scotch manufacturers, who have all been obliged to level down their quotations in the same ratio. These paraffins now range at from 1¼d. per lb. to 2d., the lowest position ever touched, and distinctly unremunerative. A meeting of refiners and candlemakers is to be held directly to review the situation. Liquid paraffins and lubricants are meanwhile unchanged in values. The former are now working into a lessening demand with the advance of spring and the moderating of the temperature; the lubricants are in good request and steady of value. The position as to sulphate of ammonia is unchanged. Holders and buyers play the same game of waiting, and hardly anything is passing in consequence. Makers sell at £7 15s. for prompt, but there are no buyers, except one here and there under contract necessities. Some makers hold for £7 17s. 6d. Nothing at all moving for forward. General chemicals are featureless. Demand moderate, at prices lately ruling.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/62°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 19s. to 20s.; borax, English, refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4¼d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 4½d.; sulphate of ammonia, £7. 15s. prompt, f.o.b. Leith; salammuniac, first and second white, £35. and £33. nett, any port; sulphate of copper, £19. 10s., less 5%, Liverpool;

paraffin scale, hard, $1\frac{1}{4}$ d. to $1\frac{1}{2}$ d., and soft, $1\frac{1}{4}$ d. to $1\frac{1}{2}$ d. per lb.; paraffin wax, 120° semi-refined, $1\frac{1}{4}$ d. to 2d. per lb.; paraffin spirit (naphtha), $7\frac{1}{2}$ d. per gallon; paraffin oil (burning) No. 1, $6\frac{1}{4}$ d., and crystal, $6\frac{1}{2}$ d., at Glasgow and other big centres, for Scotch buyers (English sales $\frac{1}{2}$ d. to $\frac{3}{4}$ d. lower); ditto (lubricating) 865° $\frac{1}{2}$ d. to $\frac{5}{8}$ d., 885° $\frac{1}{2}$ d. to $\frac{5}{8}$ d., and $890/895^{\circ}$ $\frac{1}{2}$ d. to $\frac{5}{8}$ d. Week's imports of sugar at Greenock were 3,300 bags best unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

The chemical trade is still very dull, and prices remain unaltered, though with the approach of spring and opening of Baltic ports better business is anticipated. The recent labour troubles have been satisfactorily settled. Sulphur scarce, and in demand at $\frac{1}{2}$ d. per ton. Other prices as under:—

Bleaching powder, softs, $\frac{1}{2}$ d. 15s. per ton, nett; hards, $\frac{1}{2}$ d. 7s. per ton, nett; caustic soda, $76/77\%$, $\frac{1}{2}$ d. 9s. per ton, nett; do., 70% , $\frac{1}{2}$ d. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, $\frac{1}{2}$ d. 5s. per ton, nett; soda ash, 48% , $\frac{1}{2}$ d. 2s. 6d. per ton, nett; do., 50% , $\frac{1}{2}$ d. 4s. 5s. per ton, nett; do., 52% , $\frac{1}{2}$ d. 4s. 7s. 6d. per ton, nett; alkali, 36% , $\frac{1}{2}$ d. 3s. 7s. 6d. per ton, nett; white alkali, 48% , $\frac{1}{2}$ d. 17s. 6d. per ton, nett; do., 50% , $\frac{1}{2}$ d. 2s. 6d. per ton, nett; do., 52% , $\frac{1}{2}$ d. 5s. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, $\frac{1}{2}$ d. 5s. per ton, nett; do., 1 cwt. kegs, $\frac{1}{2}$ d. 7s. per ton, nett; silicate of soda, 75° Tw., $\frac{1}{2}$ d. 12s. 6d. per ton, nett; do., 100° Tw., $\frac{1}{2}$ d. 3s. per ton, nett; do., 140° Tw., $\frac{1}{2}$ d. 3s. 7s. 6d. per ton, nett; soda crystals, casks, $\frac{1}{2}$ d. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, $\frac{1}{2}$ d. 2s. 6d. per ton, nett weight; chlorate of potash, $\frac{1}{2}$ d. 5s. per lb., less 6%; pearl hardening, $\frac{1}{2}$ d. 3s. per ton, nett; pure white sulphate of alumina, $\frac{1}{2}$ d. 17s. 6d. per ton, nett; blanc fixe, $\frac{1}{2}$ d. 5s. per ton, nett; chloride of barium, refined crystals, $\frac{1}{2}$ d. 15s. per ton, nett; do., $90/95\%$ crude calcined, $\frac{1}{2}$ d. 6s. per ton, nett; sulphide of barium, crystals, $\frac{1}{2}$ d. 15s. per ton, nett; carbonate of alumina, $\frac{1}{2}$ d. 30s. per ton, nett; aluminate of soda, $\frac{1}{2}$ d. 30s. per ton, nett.

SALT.—South Durham salt steady, at 9s. per ton, f.o.b. Tees.

COALS.—The coal trade is fairly steady, with a good demand for best Northumbrian steam and gas coals. Bunker coal rather easier. Coke still firm, at 15s. to 16s. per ton. Best Northumbrian steam, 8s. to 8s. 3d. per ton; second qualities, 7s. to 7s. 3d. per ton; small steam, 3s. 3d. to 3s. 6d. per ton. Gas coals 7s. 3d. to 8s. per ton. Bunker coals, 6s. 6d. to 7s. per ton. Household coals, 10s. to 11s. per ton. Coke in demand, at 15s. to 16s. per ton.

New Companies.

J. Brown and Co., Ltd.—CAPITAL, £12,000., in shares of each. This company has been formed to acquire the business of ammonia distillers, analytical and general chemists, now carried on by J. Brown, at Savile Town, nr. Dewsbury, and at Grimsby. Subscribers to the memorandum of association are:—J. Brown, House, Savile Town, nr. Dewsbury, chemist; J. T. Brown, 30, C street, Savile Town, nr. Dewsbury, chemist; J. Brown, Chase King's Lynn, accountant; J. Blackburn, Hatfield House, Batley, manufacturer; Mrs. E. Blackburn, Hatfield House, Batley; J. Auty, Mayville, Dark-lane, Batley, manufacturer; Auty, Mayville, Dark-lane, Batley.

Western Sugar Refineries Co., Ltd.—CAPITAL £50,000 shares of £10. each. This company has been formed to carry on the business of sugar manufacturers, refiners, etc. The subscribers to the memorandum of association are:—C. Curtis, Greenock, merchant; D. Johnston, Afton Lodge, Ayrshire, sugar refiner; S. Greenock, chartered accountant; J. W. Bailey, Westburn Greenock, sugar refiner; A. Adam, Greenock, shipowner; W. Greenock, merchant; A. Prentice, Greenock, solicitor.

Magnesite Co., Ltd.—CAPITAL, £100,000., in shares of each. This company has been formed to acquire and work the Galadaki Magnesite Quarry at Chalcis, near Euboea, Greece, and to adopt an agreement with the Petrified Syndicate, Ltd. The subscribers to the memorandum of association are:—J. H. Aston, 6, Maid Strand, London, clerk; O. W. Seligman, 21, Great Winchester London, E.C., solicitor; A. Hickman, 51, Richmond-terrace, S.W., clerk; R. Young, 1, Aberdeen-terrace, Blackheath, S.E., solicitor; F. Green, 419, Strand, London, W.C., clerk; Hale, 47, Ranelagh-road, Westbourne-square, London, W., clerk; Cleobury, 31, Station-road, Camberwell, solicitor.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. NESS and J. H. RICHARDSON, cake and manure merchants, Kingston and Cotingham, under the style of W. Ness and Co.
S. PRICE and H. PRICE, indiarubber manufacturers, Birmingham.
G. HURFORD and W. W. MIDDLETON, annatto makers, Lower Kenning S.E., and Victoria Park-road, N.E., under the style of Hurford and

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending January 30th.

Acetate of Lime—
U. States, 1,231 bgs. H. Wallace & Co.
Acetic Acid—
Holland, 60 pks. Little & Johnston
" 103 A. & M. Zimmermann
" 30 Phillips & Graves
Acetone—
Holland, 2 cks. G. Rahn & Co.
Alkali—
France, 210 c. P. Hecker & Co.
Alum—
Holland, 510 pks. Ohlenschlager Bros.
Alum Stone—
Sydney, 100 t. Aust. Alum Co.
Ammonium Nitrate—
Holland, 38 cks. Petri Bros.
Aniline Salts—
Holland, 36 cks. J. Owen
Antimony—
France, 2 t. Girard Frs. & Co.
Antimony Ore—
France, 40 t. J. Bamber
" 70 Novelli & Co.
E. Indies, 130 R. & J. Henderson
Arsenic—
Portugal, 165 brls. Coverley & Westray
Asbestos—
Germany, 69 Craven & Co.

Barytes—
Holland, 201 cks. W. Harrison & Co.
Bleaching Powder—
Holland, 150 cks. J. M. Steel & Co.
Bleaching Soda—
Germany, 308 cks. H. Lambert
Bromide of Iron—
Germany, 15 cks. A. & M. Zimmermann
Bromine—
Germany, 20 cks. A. & M. Zimmermann
Camphor—
Germany, 1 ck. T. H. Lee
Caoutchouc—
Zanzibar, 520 c. L. & I. D. Jt. Co.
Madagascar, 51 Major & Field
" 50 Prop. Bull. Wf.
Germany, 9 Wallace Bros.
Singapore, 100 Anderson & Weber & Co.
Germany, 6 L. & I. D. Jt. Co.
U. States, 100 Clarke & Smith
Zanzibar, 10 Stewart, Hole & Co.
E. Indies, 26 Hammond & Co.
Cape, 40 Procter Bros.
Madagascar, 70 Kleinwort, Sons & Co.
" 119 " Lewis & Peat
" 12 L. & I. D. Jt. Co.
Natal, 31 J. T. Renne, Son & Co.
U. States, 18 Chantard & Christensen
Holland, 22 Prop. Bull. Wf.
Castor Oil—
Italy, 25 Ck. Cray Comil. Wf. Ld.

Caustic Potash—
Germany, 51 drs. J. R. Francis & Co.
Chemicals (otherwise undescribed)
France, 636 Mory & Co.
Germany, 100 Fuerst Bros.
Holland, 104 T. H. Lee
Germany, 11 Craven & Co.
U. States, 1,545 F. Parker
Holland, 95 B. & F. Wf. Co.
Germany, 89 T. H. Lee
" 80 L. & I. D. Jt. Co.
" 500 A. & M. Zimmermann
Belgium, 36 O. Scholzig
" 36 Leach & Co.
" 379 Société John Cockerill
Denmark, 56 Bailey & Leatham
Italy, 12 Hughes, Chemery & Co.
Germany, 8 Pickford & Co.
Holland, 15 Herm, Peron & Co.
Cobalt Ore—
Australia, 161 t. Hore & Scrivener
Cream of Tartar—
France, 5 cks. B. & F. Wf. Co.
Holland, 12 Kirkpatrick & Co.
France, 5 M. Ashby, Ld.
Italy, 8 Howard & Sons
Dextrine—
Germany, 250 bgs. W. Balchin
Dyestuffs—
Spain, 920 bgs. B. Jacob & Sons

Cochineal
Canaries, 5 bgs. G.
" 10 W. M. Smith
" 21 Spelling &
Cutch
Rangoon, 500 bxs. Wrights
Divi Divi
E. Indies, 172 bgs. Culverwell
" 18 L.
Extracts
U. States, 40 bxs. Prop.
Denmark, 1 ck. Soren
" 1 Bailey & L.
France, 1 Prop.
" 30 brls. Union L.
Gambler
Singapore, 745 bls. Giffill
" 228 bgs. Berens
" 243 cks. Wel
" 106 R. & J. H.
Indigo
E. Indies, 25 chta. Bin
" 7 Ross &
" 21 H. W. J.
" 11
" 89 L. & I. D.
" 14 Arbuthnot
" 69 Hende
" 23 Credit
" 16
" 179 W.

Belgium, 9 cs. Société John Cockerill	Holland, 4 pks. Philipps & Graves	Norway, 1,065 Moreton Cox Bros.	Limestone—
E. Indies, 5 Thomas & Co.	Italy, 2 H. Keller & Co.	" 2,700 E. J. & W. Goldsmith	Antwerp, 16 pks.
" 12 Williams, Torrey & Co.	" 4 cks. W. Harrison & Co.	" 1,050 bls. Hummel & Co.	" 6 crts. J. T. Fletcher & Co.
" 14 Wallace Bros.	U. States, 50 cs. Davey & Co.	" 81 t. Ekman Pulp & Paper Co.	Linseed Oil—
Logwood 24 Lewis & Peat	" 6 W. H. Peabody & Co.	Portugal, 400 pks. Page, Son, & East	New York, 2 brls. W. Johnston & Co.
B Honduras, 69 t. A. Everingham & Co.	Plumbago—	" 4 t. James & Skakespeare	Mineral White—
Myrabolams	Ceylon, 550 cks. J. Thredder, Son, & Co.	Zinc Oxide—	Trieste, 50 bgs.
Belgium, 737 bgs. Dalton & Young	Germany, 6 T. H. Lee	Holland, 35 brls. M. Ashby, Ltd.	Mirbane Oil—
E. Indies, 670 Baxter & Hoare	" 17 B. Gallaway	" 500 Soundy & Sons	Hamburg, 3 cs.
Saffron	" 2 H. C. Everett	Germany, 40 M. Ashby, Ltd.	Naphtha—
Spain, 1 cs. Hodgkinson	" 7 H. Johnson & Sons	U. States, 100 100 cks. J. Matton	New York, 6,940 brls.
Shumac	Potassium Bicarbonate—	Holland, 30 cks. Prprs. Dowgate Dk.	Oxalic Acid—
Italy, 125 bgs. H. Johnson & Sons	Holland, 20 kgs. A. & M. Zimmermann	Germany, 50 Prprs. Dowgate Dk.	Rotterdam, 7 cks.
" 55 L. & N. W. Rly.	Potassium Carbonate—	U. States, 11 t. Cartledge & Batchelor	Paraffin Scale—
" 2,300 Beresford & Co.	Belgium, 200 c. Charles & Fox	Holland, 4 cks. J. Barber & Co.	New York, 455 brls. Thompson & Bedford
" 773 Nich's Wvs. Ld.	Germany, 130 Petri Bros.	" 8 Brit. Anti-Fouling Compo Co.	" 183 Anglo-Am Oil Co., Ld.
" 200 J. E. Scott	Potassium Prussiate—		Paraffin Wax—
" 400 Clark, Gray & Co.	Belgium, 17 brls. Perkins & Homer		New York, 10 cs. Jardine Matheson
" 20 E. L. Yeneken Co.	Rosin—		Phosphates—
Panners' Bark	U. States, 100 brls. Suter, Hartmann, & Co.		Ghent, 350 bgs. J. T. Fletcher & Co.
Natal, 61 t. Boucher, Mortimore & Co.	Rosin Oil—		" 100 t.
" 10 A. & W. Nesbitt	Germany, 21 pks. J. C. Powell & Co.		Plumbago—
A. Turkey, 156 J. Harrison	Saltetre—		Genoa, 100 bgs.
Valonia	Germany, 30 cks. L. & I. D. Jt. Co.		Potash—
A. Turkey, 30 t. A. J. Humphrey	Belgium, 85 bgs. J. Greig		Hamburg, 100 cks.
" 24 Boucher, Mortimore & Co.	E. Indies, 291 C. Wimbale & Co.		New York, 10 M. Bell
" 50 Mortimore & Co.	" 208 Henderson Bros.		Potassium Carbonate—
Farina—	Soda—		Stettin, 29 cks.
Holland, 75 bgs. J. Knill & Co.	Belgium, 40 c. R. Waters		Pyrites—
Germany, 50 J. Keiller & Son	Holland, 2,000 R. W. Greeff & Co.		Huelva, 3,677 t. Matheson & Co.
Gamboge—	Sodium Bichromate—		Rosin—
France, 10 cs. L. & I. D. Jt. Co.	Germany, 51 cks. C. Tennant, Sons, & Co.		Wilmington, 4,500 brls.
Glucose—	Sodium Hyposulphite—		Saltetre—
U. States, 326 pks. 2,026 c. Williams, Torrey, & Co.	Germany, 50 cks. F. Boehm		Antwerp, 50 cks.
" 500 500 c. G. Clark & Sons	Sodium Sulphate—		Hamburg, 25 20 kgs.
" 500 500 E. Thompson & Co.	Holland, 16 cks. J. Owen		Calcutta, 2,595 bgs.
" 500 500 Ohlenschlager Bros.	Starch—		Soap—
France, 100 100 Barrett, Tagant, & Co.	Germany, 80 cs. Philipps & Graves		Bari, 155 cs. Thompson & Co.
U. States, 250 250 Robinson, Son, & Co.	U. States, 475 pks. Beck & Pollitzer		Marseilles, 1 bx.
" 750 750 W. Balchin	Belgium, 270 cs. J. Harrison		Soapstone—
" 975 1,770 L. Norman & Co., Ltd.	U. States, 900 300 bgs. R. G. Hall & Co.		Bordeaux, 180 bgs. G. G. Blackwell, Sons & Co.
" 350 350 Fellows, Morton, & Co.	Holland, 1,215 Little & Johnston		Starch—
" 4,873 4,873 Pelly, & Co.	Belgium, 115 Phillips & Graves		Antwerp, 108 cs. J. T. Fletcher & Co.
" 500 500 Humphrey & Co.	" 60 Leach & Co.		Norfolk, Va., 1,000 bgs.
" 1,698 3,723 R. G. Hall & Co.	" 508 F. Claydon & Co.		New York, 300 T. M. Duche & Sons
Gloe—	" 100 R. Lehmann & Co.		" 1,100
France, 491 J. Harrison	" 110 T. H. Lee		Antwerp, 40 cs.
Holland, 71 G. Rahn & Co.	" 350 E. & T. Pink		Stearine—
Belgium, 348 J. Barber & Co.	Stearine—		Marseilles, 58 bgs.
Germany, 214 F. Claydon & Co.	Denmark, 8 cks. Tegner, Price, & Co.		Antwerp, 7
Holland, 83 H. Johnson & Sons	Sulphur—		Tallow—
France, 60 Elkan & Co.	Italy, 3 t. Taylor Bros.		B. Ayres, 549 cks. J. W. de Silva & Co.
Italy, 46 Prprs. Dowgate Dk.	" 5 F. Smith		New York, 10 brls.
Denmark, 40 Bailey & Leatham	" 50 C. Tennant, Sons, & Co.		Boston, 220 Stollerfoht & Son
Germany, 30 L. & I. D. Jt. Co.	" 200 Union L. Co.		" 100 hds.
Infusorial Earth—	Talc—		Campana, 130 cks.
Germany, 48 H. Tate & Sons	France, 440 Blackwell & Co.		B. Ayres, 143 pps. Ldn. & Brazil Bank, Ld.
Lamp Black—	Tartaric Acid—		Ensenda La Plata, 143 207 J. Nelson & Sons, Ld.
Holland, 10 cs. G. Rahn & Co.	Holland, 43 pks. B. & F. Wf Co.		Tartar—
Magnesia—	" 19 Kirkpatrick & Co.		Hamburg, 3 cks.
Holland, 5 cs. A. & M. Zimmermann	" 2 F. C. Devon & Co.		Bordeaux, 16
Manganese—	Ultramarine—		Tartaric Acid—
Russia, 12 t. Darling Bros.	Holland, 6 cs. Philipps & Graves		Rotterdam, 4 cks.
Murex—	" 20 cks. Thames S. T. & L. Co., Ltd.		Treacle—
Belgium, 3 t. Pickford & Co.	" 9 J. Owen		Bordeaux, 1 cs.
Germany, 30 Philipps & Graves	Yarnish—		Boston, 300 brls.
Sydney, 2 L. & I. D. Jt. Co.	U. States, 6 pks. Dawson Bros.		Ultramarine—
Germany, 32 F. W. Berk & Co., Ld.	" 1 A. Reynolds & Co.		Rotterdam, 1 ck.
France, 50 G. Bennett & Sons	Verdigris—		Yarnish—
Sydney, 2 A. Hunter & Co.	France, 1 ck. B. & F. Wf Co.		New York, 17 cs. Bible Bros.
Belgium, 30 Chemical Works Co.	White Lead—		" 4 brls. 1 bx. W. A. Warren
Methyl Alcohol—	Holland, 39 cks. D. Storer & Sons		Verdigris—
Belgium, 27 dms. Lister & Biggs	" 40 E. J. Diggins		Bordeaux, 4 cks.
Molasses—	" 23 W. A. Rose & Co.		White Lead—
U. States, 500 cks. 3,118 c. Tooley St. Cold Storage Co.	Belgium, 95 T. & W. Farmiloe		Rotterdam, 19 cks.
" 250 1,500 c. Falkenberg & Hesse	Germany, 20 Perkins & Homer		Wood Pulp—
Nitre—	" 25 brls. H. B. Alder & Co.		Gothenburg, 333 bls. G. F. Green & Co.
Peru, 11,219 bgs. Anglo-Contl. G. Wks.	Wood Pulp—		" 14 Felber, Jucker & Co.
Debre—	Sweden, 640 pks. W. G. Taylor & Co.		Rotterdam, 284
France, 6 cks. B. & F. Wf Co.	Norway, 255 Christophersen, Andrews, & Co.		
U. States, 198 Corticine Floor Covering Co.	Sweden, 800 W. E. Bott & Co.		
	" 176 Christophersen, Andrews, & Co.		
	Norway, 1,310 Johnsen & Jorgensen		
	" 163 J. Owen		
	France, 800 Tough & Henderson		
	Sweden, 400 Hummel & Co.		

LIVERPOOL.

Week ending January 28th.

Acetic Acid—	Gothenburg, 20 pks. Evans, Sons & Co.
Barytes—	Antwerp, 50 bgs. 63 cks.
Bone Ash—	Zarate, 510 bgs. J. Nelson & Sons, Ld.
Bone Meal—	Calcutta, 1,680 bgs.
Boracite—	Bombay, 10,000
Borates—	Galveston, 3,453 sks. Balfour Williamson
Borax—	Valparaiso, 3,050 sks.
Caoutchouc—	Havre, 40 cks.
Castor Oil—	Valparaiso, 9 bls. Kleinwort, Son & Co.
Colours—	Calcutta, 1,010 cs.
Ghent, 4 brls. J. T. Fletcher & Co.	
Rotterdam, 1 ck.	
Antwerp, 10	
Cottonseed Oil—	New York, 50 brls.
Cream of Tartar—	Patras, 3 brls.
Oporto, 10 cks.	
Dried Blood—	Zarate, 319 bgs. J. Nelson & Sons, Ld.
Dyestuffs—	Argols
Oporto, 23 cks.	
Cochineal	Gd. Canary, 40 bgs. Kennedy, Moon & Co.
Cutch	Rangoon, 1,350 lbs.
Extracts	Hamburg, 40 bgs.
Orchella	Valparaiso, 15 bls.
Yalonia	Syria, 420 bgs.
Farina—	Stettin, 350 bgs.
Havre, 4,000 sks.	
Glucose—	New York, 499 brls. T. M. Duche & Sons
Boston, 1,250	
Glue—	Fiume, 100 bgs. 120 sks.
Rotterdam, 5 cs.	
Infusorial Earth—	Hamburg, 125 bgs.
Iodine—	Valparaiso, 25 brls. A. Gibbs & Sons
Lamp Black—	Antwerp, 45 cks. J. T. Fletcher & Co.

Zinc Oxide—
Rotterdam, 20 cks. J. Matthews & Co.
Zinc White—
Antwerp, 25 brls.
Rotterdam, 8 cks.

MANCHESTER.

Week ending January 30th.

Alizarine—
Rotterdam, 73 cks. 23 brls.
Aniline Colours—
Rotterdam, 8 cks.
Aniline Salts—
Rotterdam, 10 cks.
Annatto—
Bordeaux, 5 cks.
Antimony Salt—
Rotterdam, 4 cks.
Barytes—
Antwerp, 100 bgs.
Benzol—
Rotterdam, 4 cks.
Caustic Potash—
Hamburg, 41 dms.
Chemicals (otherwise undescribed)
Rotterdam, 1 cs.
Chrome Acetate—
Rotterdam, 10 cks.
Colours—
Rouen, 4 cks.
Rotterdam, 3 cks. 5 cs. 24 brls.
Antwerp, 7 cks. J. T. Fletcher & Co.
Cream of Tartar—
Rotterdam, 6 cks.
Creosote Salts—
Hamburg, 5 cks.
Farina—
Stettin, 350 bgs.
Antwerp, 5
Glue—
New York, 10 brls. Anglo-American Oil Co., Ltd.
Rouen, 25 cks. 40 brls.
Rotterdam, 7
Indigo—
Rotterdam, 6 cks.
Infusorial Earth—
Hamburg, 27 bgs.
Limestone—
Antwerp, 1 crt. 1 cs.
Lithopone—
Rotterdam, 4 cks.
Hamburg, 40
Paraffin Scale—
New York, 120 brls. Anglo-American Oil Co., Ltd.
Pitch—
Antwerp, 36 cks.
Potash—
Rotterdam, 40 dms.
Pyrites—
Huelva, 1,187 t.
Soap—
Rotterdam, 1 cs.
Bordeaux, 4
Sodium Nitrite—
Rotterdam, 8 cks.
Starch—
New York, 86 bgs.
Rotterdam, 120 cs.
Antwerp, 180
Tartar—
Bordeaux, 7 cks.
Tartaric Acid—
Rotterdam, 18 cks.
Wood Pulp—
Rotterdam, 240 pks.
Zinc Ashes—
Antwerp, 15 cks.
Stettin, 15

HULL.

Week ending January 30th.

Acids—
Bari, 80 cks. Wilson, Sons, & Co., Ltd.

Alum—
Rotterdam, 34 cks. Hutchinson & Son
Barytes—
Rotterdam, 23 cks. Hutchinson & Son
Antwerp, 47 Bailey & Leatham
Rotterdam, 22 W. & C. L. Ringrose
Ghent, 20 bgs. Hutchinson & Son
Hamburg, 20 Bailey & Leatham
Chemicals (otherwise undescribed)
Hamburg, 2 cks. Wilson, Sons, & Co., Ltd.
Dunkirk, 102 pks.
Rotterdam, 19
Colours—
Dunkirk, 8 cs. Wilson, Sons, & Co., Ltd.
Antwerp, 7 cks. Bailey & Leatham
Hamburg, 6 cs. G. Malcolm & Son
Antwerp, 17 pks. Wilson, Sons, & Co., Ltd.
Rotterdam, 82 2 cs. W. & C. L. Ringrose
Cottonseed Oil—
New York, 200 brls. Wilson, Sons, & Co., Ltd.
Cream of Tartar—
Rotterdam, 2 cks. Hutchinson & Son
Dyestuffs—
Alizarine
Rotterdam, 3 cks. W. & C. L. Ringrose
4 brls.
Indigo
Amsterdam, 4 cs. Wilson, Sons, & Co., Ltd.
Madder
Rotterdam, 3 cks. Hutchinson & Son
Shumac
Trieste, 15 bgs. Wilson, Sons, & Co., Ltd.
Palermo, 700
Valonia
Antwerp, 34 bgs.
Farina—
Harlingen, 1 bl. Hutchinson & Son
Glucose—
New York, 300 brls.
Glue—
Fiume, 20 cks.
Hamburg, 60 brls. Wilson, Sons, & Co., Ltd.
Dunkirk, 21 cks.
Kaolin—
Rotterdam, 236 bgs. Hutchinson & Son
Limestone—
Antwerp, 1 cs. Bailey & Leatham
Phosphate—
Ghent, 200 t.
Dunkirk, 1,500 bgs.
Pumice Stone—
Messina, 97 pks. Wilson, Sons, & Co., Ltd.
" 44
Saltpetre—
Hamburg, 2 cks. Wilson, Sons, & Co., Ltd.
Antwerp, 133 bgs.
Soap—
Bari, 54 cs. Wilson, Sons, & Co., Ltd.
Sodium Nitrate—
Hamburg, 160 bgs. Wilson, Sons, & Co., Ltd.
Starch—
Ghent, 148 cs. Wilson, Sons, & Co., Ltd.
Antwerp, 21 Bailey & Leatham
Ghent, 20 Hutchinson & Son
Stearine—
Rotterdam, 14 bgs. Hutchinson & Son
Tar—
Copenhagen, 50 brls. Wilson, Sons, & Co., Ltd.
Treacle—
New York, 763 brls. Wilson, Sons, & Co., Ltd.
Boston, 909
Ultramarine—
Rotterdam, 2 cks. W. & C. L. Ringrose
" 2 Hutchinson & Son

Varnish—
Hamburg, 2 dms. Wilson, Sons, & Co., Ltd.
New York, 6 brls.
Antwerp, 1 cs.
White Lead—
Rotterdam, 30 cks. Hutchinson & Son
Amsterdam, 24
Wood Pulp—
Hamburg, 67 brls. Wilson, Sons, & Co., Ltd.
Stockholm, 600
Hango, 151 J. Good & Sons
Zinc Ashes—
Hango, 3 cks. J. Good & Sons

GLASGOW.

Week ending February 4th.

Acetate of Manganese—
Hamburg, 1 ck.
Acetone—
Hamburg, 1 cs.
Ammonia (Liquid)—
Rotterdam, 20 cydls. J. Rankine & Son
Barium Sulphate—
Antwerp, 82 cks.
Barytes—
Hamburg, 11 cks.
Castor Oil—
Marseilles, 188 brls. 12 cs.
Colours—
Antwerp, 2 cks. 8 cs.
Rotterdam, 3 8 57 pks. J. Rankine & Son
Cottonseed Oil—
New York, 250 brls.
Cyanides—
Amsterdam, 7 cks. 17 bgs. J. Rankine & Son
Dyestuffs—
Alizarine
Rotterdam, 1 cs. 5 cks. 109 brls. J. Rankine & Son
Aniline
Rotterdam, 3 brls. 1 bx J. Rankine & Son
Hamburg, 1 cs.
Fluoric Acid—
Hamburg, 1 ck.
Glucose—
New York, 699 brls.
Philadelphia, 200
Glue—
Rouen, 20 bgs. 21 cks. 18 brls.
Rotterdam, 2 J. Rankine & Son
Gypsum—
Rouen, 40 bgs.
Infusorial Earth—
Hamburg, 166 bgs.
Manganese—
New York, 115 cks.
Ochre—
New York, 205 brls.
Rouen, 19 cks.
Paraffin Scale—
New York, 360 brls.
Philadelphia, 100
Phosphate Rock—
Antwerp, 100 t.
Phosphorus—
Baltimore, 5 cs.
Pitch—
Hamburg, 100 cks.
Rosin
New York, 1,021 brls.
Brunswick, Ga., 1,742
Salt—
Hamburg, 1 bg.
Saltpetre—
Hamburg, 20 cks. 10 cs. 60 kgs.
Soap—
New York, 378 brls.
Starch—
Philadelphia, 400 bgs.
Baltimore, 400 sks.
Stearine—
Portland, 5 tres.
Tar Waste—
Rotterdam, 4 cks. J. Rankine & Son
Treacle—
Philadelphia, 700 brls.
New York, 300

Turpentine—
Brunswick, Ga., 1,650 brls.
Ultramarine—
Rotterdam, 6 cks. 5 cs. J. Rankine & Son

Varnish—
Antwerp, 3 tins
Waste Salt—
Hamburg, 323 cks. 100 bgs.
Wood Pulp—
Bergen, 240 brls.
Gothenburg, 60
Christiania, 6,820 27 cs.
Zinc Oxide—
Rotterdam, 10 cks. J. Rankine & Son
Zinc White—
Rotterdam, 11 cks. J. Rankine & Son

TYNE.

Week ending January 30th.

Plumbago—
Hamburg, 6 cks. Tyne S.
Soap—
Rotterdam, 4 cs. Tyne S.
Soda—
Rotterdam, 1 bg. Tyne S.
Ultramarine—
Rotterdam, 1 ck. Tyne S.
Wood Pulp—
Christiania, 1,280 brls.
Zinc White—
Rotterdam, 10 cks. Tyne S.

GOOLE.

Week ending January 27th.

Alizarine—
Rotterdam, 73 cks. 2 cs.
Alum—
Rotterdam, 21 bgs.
Antimony—
Boulogne, 4 cks.
Caoutchouc—
Boulogne, 10 cks.
Colours—
Hamburg, 20 cks. 10 cs.
Dyestuffs (otherwise undescribed)
Boulogne, 24 cks. 2 cs.
Rotterdam, 299 38
Farina—
Hamburg, 100 bgs.
Madder—
Rotterdam, 7 cks.
Plumbago—
Boulogne, 1 ck. 3 cs.
Potash—
Dunkirk, 40 dms.
Pyrites—
Huelva, 7,477 t.
La Laja, 995
Saltpetre—
Hamburg, 42 cks.
Starch—
Rotterdam, 13 cs.
Ghent, 110
Tartaric Acid—
Rotterdam, 4 cks.
Waste Salt—
Hamburg, 356 bgs.

GRIMSBY.

Week ending January 30th.

Caoutchouc—
Rotterdam, 2 cs. 3 pks.
Hamburg, 1
Chemicals (otherwise undescribed)
Hamburg, 25 cs.
Antwerp, 12
Colours—
Antwerp, 25 cks. 25 pks.
Hamburg, 17 18 cs. 61
Plumbago—
Hamburg, 4 cks.
Rosin—
Hamburg, 6 cks.

San Francisco, 20 100

Baltimore,	20 bxs. 55 pks.
Barcelona,	355 10 cks. 236
Bari,	17
Bombay,	50
Brisbane,	86
B. Ayres,	145
Catania,	50
Cerra,	90
Cienfuegos,	3
Corfu,	30
Fairwater,	50
Fiume,	30
Genoa,	438
Hamburg,	140
La Guayra,	3
Leghorn,	14
Lisbon,	405
Madeira,	5
Malaga,	161
Malta,	18
Marseilles,	174
Melbourne,	13
Messina,	45
M. Video,	113
Naples,	91
Newcastle,	6
New York,	478
Odessa,	135
Oporto,	40
Pernambuco,	80
Perth,	18
Rotterdam,	86
San Francisco,	100
San Sebastian,	45
Santo Domingo,	56
Seville,	164
Savannah,	15
Singapore,	20
Sydney,	22
Tarragona,	20
Valencia,	30
Vera Cruz,	20

Chemicals (otherwise undecorated)

Ancona,	6 c.	24
Naples,	10	16
Newfairwater,	3 t.	9
Danrig,	2	10
Rotterdam,	7	12
Calcutta,	33	154
Genoa,	3	158
San Francisco,	46	71
Philadelphia,	13	5

China Clay—

Bombay,	110 bgs.
Boston,	540 cks.
Portland, M.,	48 t.

Citric Acid—

Santiago de Cuba,	2 c. 1 q. £15
-------------------	---------------

Coal Products—**Aniline Oil**

Gothenburg,	1 dm.
-------------	-------

Aniline Salts

Boston,	31 cks.
Genoa,	6 dms.
Sydney,	1 c.

Anthracene

Rotterdam,	8 t. 18 c.
------------	------------

Naphtha

Melbourne,	30 dms.
------------	---------

Pitch

Bathurst,	10 cks.
Cette,	355 t.
Marseilles,	1,849

Tar

N. Orleans,	200 brls.
Vancouver,	10

Tar Oil

St. Nazaire,	30 cks.
--------------	---------

Coal Products (otherwise undecorated)—

Boston,	3 dms. 23 cks. 29 cs.
New York,	27 cks.

Copper Sulphate—

Palermo,	7 t.	1 q. £116
Christiania,	1	17
Algiers,	55	7 c.
Patras,	1	5
Vigo,	40	1
Trieste,	11	8
Fiume,	5	4
Venice,	73	9
Genoa,	215	6
Bordeaux,	45	3
Cette,	246	11
Leghorn,	49	8
Lisbon,	25	1
Naples,	41	15

Copperas—

Alexandria,	2 t. 13 c. 3 q.	£5
Valparaiso,	3	17
Varna,	3	3
Calcutta,	7	16

Disinfectants—

Trinidad,	64 pks.	£52
Rangoon,	1 t. 14 c. 2 cks.	£42

Indigo Waste—

New York,	5 t.	£136
-----------	------	------

Iron Oxide—

Gijon,	1 t. 14 c. 3 q.	£10
--------	-----------------	-----

Lime—

Elmina,	3 t. 10 c.	£8
Sierra Leone,	9	10
Lagos,	28	12

Magnesia—

Havre,	70 cs.	
St. John, N.B.,	10	
Santander,	5	15 cks.
Tarragona,	10	

Magnesium Chloride—

Rouen,	5 t.	£14
--------	------	-----

Magnesium Sulphate—

Pernambuco,	10 kgs.	
-------------	---------	--

Manure—

Barbadoes,	6 t. 1 c. 3 q.	£26
Gd. Canary,	20	70

Muriatic Acid—

Sydney,	10 c.	£8
---------	-------	----

Oxalic Acid—

Boston,	5 t. 11 c.	£200
---------	------------	------

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52
Tampico,	1	
Trieste,	12	
Tripoli,	4	20
Valparaiso,	135	35
Vera Cruz,	19	226
Warre,	5	

Paint—

Antwerp,	4 kgs.	
Bathurst,	15 pks.	
Belize,	110	
Bilbao,		32 dms.
B. Ayres,	9 cks.	
Cape Town,		60
Colombo,	5	
Coquimbo,	44 cs.	
Coruna,	35	
Genoa,		40
Havana,	1	
Hong Kong,		80
Iquique,	10	40
Jaffa,	3	
Las Palmas,	3	
Manaos,	7	
Mollendo,	6 cs.	
New York,	1	25
Old Calabar,	1	
Para,	27	4
Pernambuco,	1	180
Rangoon,	18	34
Savannah,	5	
Sapeli,	2	
Sierra Leone,	2	50
Talcahuano,		52
Taltal,		52</

phates—
50 l. 9 c. 1 q. £120
134 12 2 281
9 17 22
2,617 14 4,895
30 60

Acid—
1 c. 3 q. £10
als—
1 t. 12 c. £89

ad—
14 cs. 8
12 cks.

CHESTER.

ending February 3rd.

m Sulphate—
275 bgs.

blours—
6 kgs. 1 c. 1 cs.

il—
5 dms. 12 5

Acid—
5 cks. 90 btl.

oda—
30 dms. 8 cks. 3 kgs. 10 1

(otherwise undescribed)
2 cks. 3 kgs. 10 1

alphate—
198 cks. 30 cks. 173 dms. 10 cks. 10 17 cs. 30 cks. 24 dms. 47 cks. Wax— 25 brls. 34 kgs. bicarbonate— 16 brls. 25 cks. 8 cks.

HULL.

ending January 30th.

2 cks.

m—
10 cs.

m Sulphate—
298 bgs. 645 300 2,922 97 200 548 500

16 cks.

soda—
29 cks.

la (otherwise undescribed)
28 cks. 3 1 cs. 34 pks. 35 1,422 14 16 40 1 4 535 2 3 25 94 50

Rotterdam, 27 68

Reval, 10 4

Hamburg, 10 180

Cottonseed Oil—
Amsterdam, 313 c.

Antwerp, 498

Bergen, 69

Bremen, 52

Dunkirk, 257

Danzig, 52

Gothenburg, 100

Hamburg, 768

Konigsberg, 49

Marseilles, 8,026

Rotterdam, 1,172

Trieste, 400

Dyestuffs (otherwise undescribed)
Amsterdam, 25 cks.

Boston, 7

Christiania, 2

Danzig, 10 dms.

Linseed Oil—
Amsterdam, 126 c.

Antwerp, 100

Aalesund, 18

Bergen, 63

Bombay, 80

Bremen, 52

Christiania, 96

Copenhagen, 64

Drontheim, 60

Ghent, 7

Hamburg, 140

Kurrachee, 85

Manure—
Dunkirk, 6 t.

Ochre—
Hamburg, 3 cks.

Painters' Colours—
Amsterdam, 18 cks.

Antwerp, 7

Boston, 7

Christiania, 16 dms.

Copenhagen, 1 cs.

Dunkirk, 5

Drontheim, 24

Genoa, 4

Gothenburg, 2 2 pks.

Kurrachee, 34

New York, 150

Odessa, 50

Rotterdam, 2

Stettin, 2

Pitch—
Antwerp, 206 t.

Dunkirk, 200

Kurrachee, 147 cks.

Soap—
Christiania, 7 cs.

Starch—
Copenhagen, 40 cs.

Tallow—
Amsterdam, 52 cks.

Dunkirk, 70

Gothenburg, 15

Leghorn, 6

Tar—
Amsterdam, 27 cks.

Antwerp, 6

Danzig, 6

Hamburg, 5

Konigsberg, 1

Yarnish—
Amsterdam, 1 ck. 1 cs. 3 dms.

Antwerp, 1

Copenhagen, 1

Drontheim, 4

Hamburg, 1

GLASGOW.

Week ending February 4th.

Ammonium Sulphate—
Georgetown, 395 t. 11½ c.

Sourabaya, 37 14½

Bleaching Powder—
Calcutta, 91 t. 17 c.

Boracic Acid—
Hioigo, £42. 18s.

Borax—
Canada, £169

Caustic Soda—
Calcutta, 17 t.

Coal Products—
Aniline Dyes

Calcutta, £21

Creosote Oil

France, £800

B. Ayres, 252

U.S.A., 75

Pitch

France, £872

New York, 258

Christiania, 70

Tar

Canada, £52

Coal Products (otherwise undes.)—
Rotterdam, £810

Hamburg, 70

Cottonseed Oil—
Amsterdam, 15 c.

Cresylic Acid—
Richmond, Va., £52

Extracts—
Canada, £87

Sherbrooke, 337

U.S.A., 268

Gelatin—
Philadelphia, £256

Linseed Oil—
Hong Kong, 2 t. 15 c.

Canada, 8 14

Port au Prince, 2 ½

Manganese—
Basle, £105

Manganese Oxide—
U.S.A., 10 t. 9 c.

Paint—
Pt. Louis, £27. 11s.

Painters' Colours—
Demerara, qty, £23

Durban, 76

Hong Kong, "

Mauritius, "

Shanghai, "

Calcutta, "

Algoa Bay, 50

Cape Town, 25

E. London, "

Paraffin Wax—
Bombay, £60

Hong Kong, 80

Christiania, 60

Potash Salts—
Delagoa Bay, £422

Mexico City, 2 t. 14 c.

Potassium Bichromate—
Antwerp, £400

B. Ayres, 88

Sheep Dip—
B. Ayres, £142

Soap—
Antigua, 1½ c.

Mauritius, 6 t. 5

Penang, 2 10

Port of Spain, 10 17½

Shanghai, 2

Sodium Sulphate—
Calcutta, 4 t. 8 c.

Sulphuric Acid—
M. Video, £20

Tallow—
Rotterdam, 10 t. 2 c.

Tartaric Acid—
U.S.A., £60

Treacle—
King Wm.'s Town, 1 t. 15 c.

Amsterdam, 4 6

Christiania, 7 19

Yarnish—
Calcutta, £20

White Lead—
Pt. Louis, £39

Delagoa Bay, £20. 10s.

TYNE.

Week ending January 30th.

Alkali—
Trieste, 6 t. 14 c.

Rotterdam, 12 3

Antimony—
Rotterdam, 1 t.

Antwerp, 1

Barium—
Rouen, 5 t. 1 c.

Bleaching Powder—
Bergen, 18 l. 1 c.

Amsterdam, 10 11

Gothenburg, 34 17

Copenhagen, 7 4

Odense, 5 4

Rotterdam, 11 1

Antwerp, 14 2

Hamburg, 27 9

Carbolic Acid—
Ergasteria, 13 c.

Odense, 12

Castor Oil—
Gothenburg, 7 c.

Caustic Soda—
Trieste, 5 l. 2

Amsterdam, 12 15

Valencia, 32 12

Bilbao, 20 2

Hamburg, 16 18

Rouen, 5 1

Bergen, 1 9

Chemicals (otherwise undescribed)
Smyrna, 1 c.

Lamp Black—
Rotterdam, 1 t. c.

Linseed Oil—
Ergasteria, 12 c.

Litharge—
Antwerp, 1 t. 3 c.

Hamburg, 1 7

Magnesia—
Antwerp, 5 c.

Hamburg, 4

Manure—
Valencia, 30 t.

Paint—

Rotterdam, 5 c.

Antwerp, 6

Bergen, 2 t.

Smyrna, 2 q

Phosphorus—
Seville, 1 t. 9 c.

Soda—
Bergen, 10 t.

Antwerp, 2 2 c. 180 cs.

Smyrna, 16 5

Soda Ash—
Trieste, 19 t. 5 c.

Antwerp, 6 17

Hamburg, 2 2

Sodium Silicate—
Gothenburg, 1 t. 5 c.

Sodium Sulphate—
Aalborg, 2 t. 10 c.

Superphosphates—
Valencia, 75 l.

La Rochelle, 52

Tin Ashes—
Copenhagen, 16

PRICES CURRENT.

WEDNESDAY, FEBRUARY 10TH, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	& 8/9
" Glacial	"	40/-	
Arsenic S.G., 2000°	"	1	4 0
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1½
Oxalic	nett	0	0 3½
Phosphoric, 1750°	"	0	0 11½
Picric	"	0	0 11
Sulphuric (fuming 50 %	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" 150°	"	1	5 0
" (free from arsenic, 145°)	"	1	7 6
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2½
Tartaric	"	0	1 1
Arsenic, white powdered	nett per ton	24	10 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	2 6
Aluminoferrous	"	2	5 0
Aluminium (Ingot metal 98/99½ %)	nett per cwt.	7	17 6
Ammonia, Anhydrous	per lb.	0	1 3
" 880=28° B.	"	0	0 2½
" =24° B.	"	0	0 1½
" Carbonate	nett	0	0 3
" Muriate	per ton	19	10 0
" (sal-ammoniac) 1st & 2nd	per cwt.	35	& 33/-
" Nitrate	per ton	33	0 0
" Phosphate	per lb.	0	0 4½
" Sulphate (grey) London	per ton	7	15 0
" (grey) Hull	"	7	15 0
Aniline Oil (pure)	per lb.	0	0 9½
Aniline Salt	"	0	0 8½
Antimony	per ton	31	5 0
" (tartar emetic)	per lb.	0	0 9½
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	17 6
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	42/6	10 65/-
Bleaching Powder, 35 %	nett	6	10 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	13	10 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	"	15/-	to 30/-
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20 %	nett per lb.	0	0 7
Magenta	"	0	3 0
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0 8
Benzol, 90°s	per gallon	0	3 2
" 50/90	"	0	2 10
Carbolic Acid (crude 60°)	per gallon	0	2 2
" (crystallised 40°)	per lb.	0	0 7½
" (liquid 95/97 %)	per gallon	0	0 10
Creosote (ordinary)	"	0	0 2
" (filtered for Lucigen light)	"	0	0 2½
Crude Naphtha 30 % @ 120° C.	"	0	1 1
Grease Oils, 22° Tw.	per ton	2	15 0
Pitch, f.o.b. Liverpool or Garston	"	1	3 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 7
Copper	per ton	51	2 6
" Sulphate	"	19	5 0
" Oxide (copper scales)	"	44	10 0
Glycerine (crude)	"	40	0 0
" (distilled S.G. 1250°)	"	70	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	10 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	13	5 0
" Litharge Flake (ex ship)	"	14	15 0
" Acetate (white	"	23	0 0
" brown	"	15	10 0
" Carbonate (white lead) pure	"	16	15 0
" Nitrate	"	19	0 0

Lime, Acetate (brown) (ex ship)	per ton	4	17 6
" (grey) (ex ship)	"	8	5 0
Magnesium (ribbon and wire)	per oz.	0	2 2
" Chloride (ex ship)	per ton	2	7 6
" Carbonate	per cwt.	1	17 6
" Calcined Magnesia	per ton	8	15 0
" Sulphate (Epsom Salts)	per ton	2	15 0
Manganese, Sulphate	"	16	10 0
" Borate	per cwt.	2	10 0
" Ore, 70 %	per ton	3	10 0
Methylated Spirit, 61° O.P.	per gallon	0	1 8
Naphtha (Wood), Solvent	"	0	2 8
" Miscible, 60° O.P.	"	0	2 9
Oils:—			
Cotton-seed	per ton	15	15 0
Linseed	"	16	15 0
Petroleum, American	per gallon	0	0 6½
Stearine	per ton	19	10 0
Phosphorus (yellow)	per lb.	0	2 2
" (red)	"	0	2 8
Potassium (metal)	per oz.	0	3 7
" Bichromate	nett per lb.	0	0 4½
" Carbonate, 90 % (ex ship)	per ton	17	10 0
" Chlorate	per lb.	0	0 4
" Cyanide, 98 %	"	0	0 11½
" Hydrate (Caustic Potash) 90 %	per ton	24	5 0
" (Caustic Potash) 75/80 %	"	20	10 0
" (Caustic Potash) 70/75 %	"	20	0 0
" Nitrate (refined)	per cwt.	1	1 6
" Permanganate	per cwt.	3	17 6
" Prussiate Yellow	per lb.	0	0 5
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	10 0
Silver (metal)	per oz.	0	2 3½
Sodium (metal)	per lb.	0	2 1
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15 0
" (Caustic Soda-ash) 48 %	"	4	5 0
" (Carb. Soda-ash) 48 %	"	4	0 0
" (Alkali) 58 %	"	3	10 0
" (Soda Crystals)	"	2	0 0
" Acetate (ex-ship)	"	14	0 0
" Arseniate, 45 %	"	14	10 0
" Chlorate	per lb.	0	0 5
" Borate (Borax)	net, per ton	18	15 0
" Bichromate	per lb.	0	0 3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	9	5 0
" (74 % Caustic Soda)	"	8	2 6
" (70 % Caustic Soda)	"	7	2 6
" (60 % Caustic Soda)	"	6	2 6
" (pure liquor 90° Tw.)	"	3	15 0
" 77/78 % powdered (99 % hydrate)	"	13	10 0
" Bicarbonate	"	6	10 0
" Hyposulphite	"	5	5 0
" Manganate, 25 %	"	15	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8 1½
" Nitrite, 98 %	per ton	30	0 0
" Phosphate	"	12	10 0
" Silicate (glass)	per ton	4	10 0
" (liquid, 100° Tw.)	"	3	10 0
" Stannate, 40 %	per cwt.	3	2 9
" Sulphate (Salt-cake)	per ton	0	19 0
" (Glauber's Salts)	"	1	7 6
" Sulphide	"	6	15 0
" Sulphite	"	3	0 0
Strontium Hydrate, 100 %	"	8	0 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 6½
" Barium, 95 %	"	0	0 4½
" Potassium	"	0	0 6½
Sulphur (Flowers)	per ton	7	10 0
" (Roll Brimstone)	"	6	10 0
" Brimstone: Best Quality	"	4	15 0
Superphosphate of Lime (26 %	"	2	15 0
Tallow	"	18	0 0
Tin Crystals	per lb.	0	0 4½
" English Ingots	per ton	66	0 0
Zinc Spelter	"	17	15 0
" Chloride (solution, 160° Tw.)	"	5	2 6

THE CHEMICAL TRADE JOURNAL

AND
OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

509.

SATURDAY, FEBRUARY 20, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Topics	141
Chlorine Generator	142
Stary Jottings	142
at List	143
of Latest Complete Speci-	143
and the Chemical Trade	143
Memoranda	144
f Companies	144
Shelf	145
ion of Castor Oil	145
elligence	146
ican Phosphate Industry	146
dence	146
Selected Correspondence	146
Trade Notes	148
Tar and Ammonia Products	148
Miscellaneous Chemical Market	148
Report on Manure Material	149
Liverpool Oil and Colour Market	149
The Metal Markets	149
Tyne Chemical Report	149
West of Scotland Chemicals	149
Hull Paint, Oil, and Colour Report	150
New Companies	150
Imports	150
Exports	153
Prices Current	156

ADVERTISEMENT.

ANTED MAN about 30, with thorough know-
edge of Sulphuric Acid Making, some experience in Chemical Analysis,
agement of men.—Apply by letter to Spooner and Bailey, Chemical Works,
Southampton.

Notices.

Communications for the *Chemical Trade Journal* should be
ed, and Cheques and Post Office Orders made payable to—
VIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—
"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, to the
Trade Journal,—payable in advance,—including postage
art of the world, are as follows:—

Early (52 numbers)	12s. 6d.
Half-Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

ers will oblige by making their remittances for subscriptions by
r Post Office Order, crossed and payable to "Davis Bros."

ers are invited to forward items of intelligence, or cuttings
cal newspapers, of interest to the trades concerned.

Communications for the Editor, if intended for insertion in the
week's issue, should reach the office not later than **Tuesday**
og.

Advertisements.

d Advertisements of Situations Vacant, Premises on Sale or To be Let,
ous Wants, and Specific Articles for Sale by Private Contract are
in the *Chemical Trade Journal* at the following rates:—

35 Words and under	2s. 6d. per insertion.
Each additional 10 words	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the
ates when prepaid, viz.:—

20 Words and under	1s. 0d. per insertion.
Each additional 10 words	0s. 3d.

Advertisements, Announcements in the Directory Columns, and all Adver-
not prepaid, are charged at the Tariff rates, which will be forwarded on
s.

Advertisements intended for insertion in the current week's issue
each the office by **Thursday morning** at the latest.

CURRENT TOPICS.

CHEMICALS AND THE AMERICAN TARIFF.

EVER since the termination of the Presidential election in
the United States there has been a certain amount of
curiosity, not to say anxiety, experienced by those engaged
in the chemical trade on this side of the water.

It was naturally supposed that with the advent of Mr.
McKinley his protective tariffs would also come. This has
certainly been the case, but as far as our readers are
immediately concerned, things do not look so bad up to now.

Owing to the determination to leave all soap-making raw
materials as they were under the Wilson Bill, sodas will
remain the same. Oil stock, including castor oil, will like-
wise be unaltered, except in the case of products containing
linseed oil. It should be pointed out, however, that under
the agricultural schedule the rate for castor beans has been
advanced.

Paints, pigments, and dyestuffs have not been quite so
fortunate, but it is not anticipated that the changes will
entail any very serious advance, except in the case of lead
compounds. At present lead ores have been advanced one
cent per pound, while white lead and lead acetate have to
bear an increase of 2½ cents per pound.

Borates also have had the duty increased to 2 cents per
pound in the case of borate of lime, and 3 cents for refined
borax and boracic acid. Even these rates, however, are not
so high as under the old McKinley Bill.

Among other miscellaneous articles that have been the
subject of a higher duty there may be mentioned plate glass
at a rise of 2½ to 4 cents per square foot, according to
dimensions of the plates, while under the agricultural
schedule salt and starch also suffer.

CHEMICAL INDUSTRY IN RUSSIA.—AN OPENING.

Latterly, much more than heretofore, has been heard, in
one way and another, of the rise and development of chemical
manufacturing industries in Russia, but most of this enter-
prise has been confined to the northern districts.

The chief articles produced have been soda and similar
chemicals, and colours such as ultramarine and aniline
products.

In the South of Russia, however, next to nothing has been
done, although German capitalists have had chemical works
established at Riga and Moscow for two years.

In regard to soda it appears that a German-Belgian
Syndicate practically enjoys a monopoly, and virtually rules
the market. On this account, it is stated in the Russian
papers, that the Minister of Finance would not stand in the
way of competitive producers in the South, but would most
probably be disposed to mildly assist any efforts in this
direction.

There is one point in favour of the South as a fresh centre
for the manufacture of soda, namely, it is there that the chief

supplies of raw materials exist, so that the essentials should be cheap as well as plentiful. In the South also fuel is comparatively cheap, and liquid fuel would be available for use whenever possible.

These views are evidently shared in by the merchants in the South, as our Russian correspondent, Mr. Rud. C. Gittermann of Odessa, informs us that business men in that district are willing to find a suitable site for a works, and also a fourth of the necessary, capital. Under these circumstances there is an assurance of local enmity being absent, and we have no doubt our correspondent would be willing to give further particulars to any readers who may be interested.

PROPOSED NATIONAL PHYSICAL LABORATORY.

This week a deputation of eminent men of science has waited on Lord Salisbury with a view to inducing the Government to subsidize a national laboratory for physical research.

As regards desirability there can be little doubt, and Lord Salisbury did not hesitate to acknowledge the duties of the State in connection with standardising work.

It is scarcely within the range of practical politics, however, to inaugurate and support everything that is desirable, when there are so many things needed that are actually highly necessary.

It appears that the original outlay would be £30,000., and the sum necessary for maintenance £5,000. per annum. But the matter does not end there, as seemingly these are only the amounts that will be needed at first.

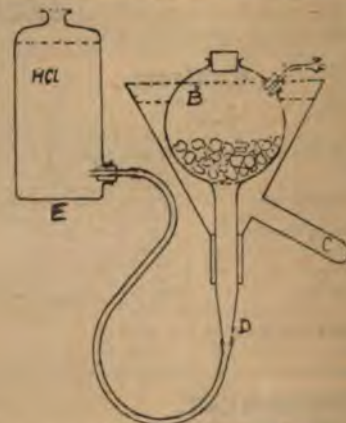
We should be very sorry to help in any way to discourage the State in giving more support to the spread of chemical and physical research, but this proposal follows so closely upon the opening of the Davy-Faraday Laboratory and Dr. A. Nobel's munificence that one is tempted to ask whether it would not be better to seek help through these new sources, and possibly make better use of the Imperial Institute.

It seems as if much might be done in this way, so that ultimately a scheme could be put before the Government pointing out the advantages that would accrue, and asking for defined financial assistance (which could hardly be refused) towards the extra expense incurred. In this way existing facilities would be utilized and benefited by more active service.

A NOVEL CHLORINE GENERATOR.

THE intermittent preparation of chlorine gas, either for laboratory or lecture purposes, has always been the bug-bear of demonstrators. The familiar flask and soup-plate device was suggestive of mishap, and if the generation was safely conducted, it could not easily be stopped again. The ingenious apparatus we illustrate, however, seems to be a great advance upon existing methods in all ways. It was recently communicated to the American Chemical Society by Mr. T. H. Norton, who thus describes his apparatus:—An automatic chlorine generator, based upon the use of manganese dioxide, has long been desired, and in the illustration a form of generator is shown which for six years has rendered satisfactory service, both on the lecture table and in the laboratory. The essential parts only are outlined without the accompanying supports. *A* is a copper funnel, provided with a hollow projection *C*, on one side, perfectly similar in make to the funnels used for hot water filtration. It can be advantageously replaced by the more graceful and modern type of aluminium funnel, resting in a ring burner. The reservoir *B* is of glass, and is an article of current manufacture, obtainable from all dealers in chemical glassware. The long, tapering neck is tightly fastened in the neck of the funnel by means of a section of rubber tubing. A large opening at the top, closed by a rubber stopper, serves for the admission of the charge. In a smaller tubulure on the side is a perforated rubber stopper with outlet tube and tap. The funnel with its reservoir is held firmly in a support, so that the end of *C* is about two c.m. above the top of an ordinary burner. A perforated plate is introduced into *B* as to prevent solid matter from falling into the narrow neck. The is connected at *D* with a large tubulated bottle *E*, which serves

as a reservoir for hydrochloric acid, and is attached to a support so that it can be raised or lowered at will. When in use *B* is filled to thirds of its capacity with manganese dioxide, large lumps alone used, as powdered mineral may easily cause a stoppage of the neck. *E* is filled with hydrochloric acid and raised to a level above the top of *B*. Water is poured into the funnel *A* until nearly full, and a Bunsen is placed under *C*. As soon as the temperature has reached about 80°, a very small flame suffices to maintain activity of the generator. When the exit from *B* is open, the acid and the evolution of chlorine continues until checked by closing it when the acid is driven back into *E*. A slight agitation of the before opening the tap serves to prevent the accumulation of a



of weak acid at the bottom. It is advisable to lower the reservoir when a current is not required, so as to avoid pressure and any escape through minute leaks. In practice it is also found desirable to connect the opening of *E* by a flexible tube with a bottle of caustic solution, the tube terminating at the surface of the solution. This prevents any escape of chlorine, with which the contents of *E* are saturated. When thus arranged a current of the gas can be taken will from the generator, the sole condition being the maintenance of a small flame beneath *C*. The manifold advantages of such a generator, especially for the lecture table, will be appreciated by all who have made an extended series of experiments with chlorine. A generator in the reservoir *B* contains 1,500 c.c., is a very convenient size for the lecture room.

Parliamentary Jottings.

THE PATENT LAWS.

IN the House of Commons last week, Captain Philpotts asked the President of the Board of Trade whether foreigners, by taking a patent in England, could prevent a process from being carried out in this country by others without any obligation on their part to give him a license. He answered that they could, and that it was their duty to do so. He then asked whether he was aware that in all other European countries a person was bound to exercise his patent within those countries; whether he was aware that trades amounting to very large sums, amongst others, in the dyeing of cotton, the products of coal-tar, were foreign monopolies, prejudicial to British interests, in consequence of this state of the law; and whether he would take steps in the interests of home industries and home labour to bring the patent laws of the United Kingdom into conformity with those of every other European country.

Mr. Ritchie referred the hon. member to section 22 of the Patent Act, 1883. He would see that that section prescribed a course of procedure where (*inter alia*) a patent was not being worked in the United Kingdom by reason of the default of a patentee to grant licences, and, in the absence of any decision to the contrary, he was not satisfied that it was not effectual as it now stood to meet the cases suggested. Correspondence columns this week.—Ed. C.T.J.]

RUBBER SAMPLES BY POST.

In answer to Mr. Warr, Mr. Hanbury said the Postmaster-General regretted that he could not see his way to remove the present restriction upon the transmission of rubber samples by sample post. There was no objection, however, to their being sent by parcels post in tight packets.

THE MUNZT METAL CO.—Mr. J. W. Richards, of 40, Abchurch Lane, London, E.C. 4, has been appointed for this company. He attends the Royal Exchange, Manchester, No. 12 pillar on Tuesdays.

The Patent List.

It is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally value of Chemical Patents.

CATIONS FOR ENGLISH LETTERS PATENT.

- Centrifugal Separators. H. de V. Robbée. 2,597. February 1.
 Ammonia. C. H. Mebner. 2,654. February 1.
 e Paints, Pigments, and the like. A. J. Boulé. 2,667. Feb. 1.
 nts in the Electro-deposition of Copper, etc. W. E. Heys. February 2.
 Method and Apparatus for the Electro-deposition of Copper. E. Heys. 2,710. February 2.
 Apparatus for the Electro-deposition of Copper, etc. W. E. 2,711. February 2.
 Apparatus for the Electro-deposition of Copper, etc. W. E. 2,712. February 2.
 nts in Sewage Treatment Processes. E. S. Beavan. 2,757. 2.
 Preparation. J. Werber. 2,774. February 2.
 or Producing Oxygen from Air. W. C. Tyler. 2,863. Feb. 3.
 roduction of Calcium Carbide. H. Maxim. 2,874. February 3.
 Condensing, Absorbing, Distilling, Heating, etc., Gases and H. Hirzel. 2,900. February 3.
 Explosives. H. Maxim. 3,002. February 4.
 or Obtaining Oxygen from Air. W. C. Tyler. 3,039. Feb. 4.
 Gold and Silver from Ores. K. A. May and F. Eldridge. 3,037. 4.
 e of Zinc Oxide. J. de F. Maunder. 3,116. February 5.
 nts in or Relating to Soap. E. J. Ellis. 3,207. February 6.
 ns Purifiers. G. Zoschocke. 3,219. February 6.

ACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

nts in Arrangements and Apparatus for Filtration of R. E. von Lengerke, 1, Victoria-street, Westminster, London, S.W. 1,038. January 15, 1896.

principle that the filtration of sewage is more efficiently y leaving the sewage quiescent for a time in the filter bed, after drawing off, the filter should be left to dry for a time ng in more sewage, an arrangement of floats and valves has d by the patentee, so that four filters are automatically ss in rotation through the four phases of charging, standing, and draining or drying. There are two drawings he mechanism employed.

nts in Means for Obtaining Carbonic Acid from Gaseous W. Raydt, 105, Silberburgstrasse, Stuttgart, Württemberg. Eng. January 13, 1896.

n improvement on the patent described in the *Journal*, 64. Instead of directly moistening the layer of carbonate d to absorb the carbon dioxide from the gases, with water, ound that steam is preferable on account of giving a more ation. If the gases were merely saturated with steam, the of carbonate would get too much moisture, and the upper ough, as the gases passed through the apparatus. The odification is therefore introduced. A porous layer is super- the tray of carbonate, and this layer is charged with ter to maintain the reaction. As the gases pass through at re of 70°C., the water is vapourised, and the temporarily es come in contact with the alkali to form bicarbonate. vo drawings of the apparatus.

Purifying Crude Acetic Acid. A. Schmidt, 49, Kölnischestrasse, rmany. Eng. Pat. 25 100. November 9, 1896.

oxygen is used to remove the empyreumatic constituents of acid, in the place of indirect oxidizing agents. The acid cept warm and under pressure. The apparatus employed vertical, closed filter, charged with charcoal, and fitted ure gauge and safety valve. A rose delivers the acid at the force pump. Oxygen is passed in through the bottom from compressed gas. A shelf is placed a few inches from the ary the charcoal, and leave a space in which purified acetic , and is drawn off at the lowest point of the sloping bottom the filter is provided. The tarry oxidation products are the charcoal. There is one drawing.

Process for the Production of a Food of High Nutritive Value from the Molasses of Raw Beet Sugar F. W. Golby, 36, Chancery-lane, London, W.C. (communicated by J. Hensel, of Hermsdorf-Kynast, Silesia). Eng. Pat. 24,038. October 28, 1896.

At present the quantity of carbonate of potash in molasses seriously detracts from its dietetic value, as its presence prevents absorption by the chyliferous vessels of the intestine. The addition of flour or malt is therefore rendered practically useless. Moreover, by the lime treatment in the course of manufacture the phosphates are removed. To overcome these drawbacks, phosphoric acid is added at the rate of about 2½ parts of phosphoric acid to 100 parts by weight of molasses. Enough bicarbonate of soda to combine with the free phosphoric acid is also added after the mixture has been heated in a steam bath. The carbonate of potash is thus changed into phosphate, as is also part of the potash in the sugar and starch acids. The molasses are thinned by the treatment, which is an additional advantage.

The Production of Fast Colours on Animal Fibre by the Aid of Oxide of Titanium. J. Barnes, 149, Manchester-road, Accrington, Lancashire. Eng. Pat. 5,712. March 14, 1896.

The titanium oxide is used as a mordant, either in the hydrated form of $TiO_2 \cdot 2H_2O$, or more or less chemically combined with phosphoric, sulphuric, and oxalic anhydrides. All the alizarine colours and the so-called "wood colours" yield lakes upon or within the animal fibres, producing dyes fairly fast to light and soaping. Particulars of the methods of application and the colours produced are set forth in the specification.

NIAGARA AND THE CHEMICAL TRADE.

MUCH interest attaches to the growth of chemical and allied industries in the neighbourhood of Niagara, or within a reasonable distance for using the electric power being supplied by the Falls Power Company. The following is a list of power contracts made:—

HYDRAULIC POWER.

	<i>Horse-power.</i>
Niagara Falls Paper Company	7,200

ELECTRIC POWER.

Pittsburgh Reduction Company (aluminium)	3,050
The Carborundum Company (carborundum)	1,000
Acetylene Light, Heat and Power Co. (calcium carbide) ..	1,075
Buffalo and Niagara Falls Electric Light and Power Co. (local lighting)	500
Walton Ferguson (chlorate of potash)	500
Niagara Electro-Chemical Company (peroxide of sodium) ..	400
Buffalo and Niagara Falls Electric Railway (local railway) ..	250
Niagara Falls and South Buffalo Railway Co. (local railway) ..	250
(All from October 1, 1896.)	
Buffalo Street Railway Company (22-mile transmission) ..	1,000
(From November 15, 1896.)	
Acetylene Light, Heat and Power Company:	
(From February 1, 1897)	1,000
(From March 1, 1897)	1,000
(From delivery, say, November 1, 1897)	2,000
Mathieson Alkali Works (soda ash)	2,000
(From June 1, 1897.)	
Buffalo Street Railway Company	1,000
Buffalo General Electric Company (lighting)	3,000
(From November 15, 1897)	
Totals	25,225

SUMMARY.

Total hydraulic power sold—Niagara	7,200
Total electric power sold—Niagara	13,025
Total electric power sold—Buffalo	5,000

ADDITIONAL.

Albright and Wilson, Limited (electro-chemicals)	400
--	-----

1896—Grand Total

It will be obvious at a glance that Niagara has already started on its career as a great chemical centre, and thus justifies the prediction that the chemical trades would centre ultimately around the sources of cheap power.

NEW SOAP WORKS.—We referred last July to the soap sold by the Salt Union, Limited. They are now about to introduce a new branch in the shape of soap works, which are likely to prove a considerable means of employment. Preparations are already in progress, and plans are to be presented at the next council meeting.

Official Memoranda.

(From the Board of Trade Journal.)

GERMAN SOUTH-WESTERN AFRICAN TARIFF.

The following are the duties leviable on imported goods:—

Petroleum.....	per kilo : gross	mk. pf.
Soap.....	"	0'05
Matches.....	"	0'05
Salt.....	"	0'02
Guano of all kinds:—		

- When exported in vessels which are entirely laden with guano or up to more than three-quarters of their registered tonnage—for each ton or part of a ton—as per certificate of tonnage..... per ton 35'00
- When exported in vessels laden with guano up to less than three-quarters of their register tonnage, and when exported by land per 100 kilos. 3'00

MINOR TARIFF CHANGES.

SOAP is threatened with a duty of 50 ores instead of 33½ when imported into Denmark.

BEST SUGAR MANUFACTURERS will be taxed in the Netherlands if the excise duty amounts to less than 9,100,000 fl. for 1897.

PACKING IN GRASS OR STRAW.—No fruit, plants, or other products shall be imported or brought into Tasmania packed in grass, straw, or any material calculated to introduce into Tasmania the Queensland battle-tick (*Ixodes Bovis*); and any person acting in contravention to this section shall be liable to a penalty not exceeding one hundred pounds.

THE ANGLO-SICILIAN SULPHUR COMPANY.

From the following it would seem that the Anglo-Sicilian Sulphur Company has been more or less successful in reviving the declining sulphur industry of Sicily.

The official figures of the amount of sulphur exported during the months of October and November last, from mines which have given in their adhesion to the society were 60,820,046 kilos.—or, with the other mines, a total of 77,318,795 kilos.

The movement for the month of October, 1896, was 43,000 tons, as compared with 22,300 tons for October, 1895. The demand from abroad, especially from France and the United States, has been very remarkable.

A JAPANESE IRON FOUNDRY.

The Japanese Government have decided to establish an iron foundry. It will be capable of turning out 60,000 tons of steel yearly. A sum of a little over four million yen, spread over four years, was approved by the last session of the Diet for this enterprise. The scheme has been steadily pushed forward, and while experts have been sent to investigate foundry affairs in the West and to engage two foreign experts as managers, other experts staying at home have succeeded in selecting a suitable site for the buildings. It was originally designed to establish foundries in two different places, but prudence dictated starting one at first. The site selected is situated in the village of Yedamitsu, Oga District, Fukuoka, and covers more than 200,000 tsubo. It slopes from south to north, and rests on a firm substratum of granite. In one direction it terminates on the coast, and is only a few miles distant from the port of Wakamatsu. The result of the last two years' meteorological observations shows that the district enjoys exceptionally fair weather throughout the year, no less than 233 days having been clear and only 53 days cloudy.

GERMAN IMITATION WHISKY.

The Customs authorities at Calcutta have had occasion to confiscate 150 cases of imitation whisky, which had been consigned to a well-known firm of wine merchants in Calcutta. The bottles were labelled "Finest Malt Whisky," and a fictitious Scotch name also appeared on the labels in large letters. In a corner of the label, and in tiny characters, were the words "Made in Germany." The bottles, on being submitted to analysis, were found to contain not a particle of malt spirit. It is said that similar seizures are likely to be made shortly. The consigners of the "whisky" are a Hamburg firm.

MESSRS. J. McDOWALL AND CO.—We have recently received some samples of the horse, cattle, and poultry condiments prepared by this firm, and for which they obtained a diploma at the Chicago Exhibition. They are supplied to a great number of veterinary and other users.

Reports of Companies.

ROSARIO NITRATE COMPANY LIMITED.

The ordinary general meeting of this company was held last at Winchester House, E.C. Mr. Archibald Balfour, who presided, observed that the profits for the past year, to December 31, had been £121,000, out of which they had paid the debenture interest current charges, leaving a balance of £85,000. Adding to this sum brought forward, deducting the redemption of debentures, an interim dividend of 3 per cent. already paid, and reserving one-tenth of the debenture sinking fund, there remained a balance of £40,000. Out of this they proposed to declare a final dividend of 3 per cent. leaving a balance of £3,081 to be carried forward. The dividend showed a fall from 10 per cent. to 6 per cent., a fact which was explained. In the accounts of 1895 they had to the credit of the company £21,000, and the payment of the dividend of 10 per cent. left only a few hundred pounds to be carried forward. The difference in the dividend paid for 1895 was represented by the £1,000, the considerable balance they proposed to carry forward. In regard to this and to the fact that the nitrate industry had during the period under review been passing through a very critical time, he thought there was every reason for regarding the results of the year's working as fairly satisfactory. A sum of £2,644 had been made by them by profit on exchange. The Chilean Government the year had carried through a scheme for converting its currency had now returned to a gold basis, at an exchange of 18d. He thought they all had reason to feel that that Government had taken the right course, upon which it was to be congratulated. The construction of a new maquina at Puntilla de Huará was commenced on November 1895, and work was started on November 3 last. The company was now undergoing the trial provided for by the conditions of the combination. They had received the result of the first month's work, which came out at 128,000 quintals. The company had, therefore, obtained an oficina capable of turning out this quantity per month at a cost below £50,000. He thought they might confidently look to the future of this oficina, as it was estimated that nitrate was manufactured there cheaper than at the Rosario oficina. Within three months' trial at that oficina was finished, they intended to give a 90 days' trial at the Argentina oficina. They would, no doubt, be able to obtain a considerable increase in the quota of production allowed to them. They continued to maintain excellent relations with the two railway companies. The Nitrate Railway Company had the 1st ult. reduced the freight from 8d. to 6d. per quintal. Many criticisms had been made on the combination which was in operation at the beginning of last April, and he was ready to say that it was far from being perfect, but there was no doubt that they were all better off with it than without it. The idea of the combination was not to force nitrate to an extravagant price, but to try and get the supply more on a level with the demand. He concluded by the adoption of the report. Mr. George Petrie seconded the report, which was adopted.

DIVIDENDS.

HENRY BESSEMER AND COMPANY.—The annual meeting of Henry Bessemer and Company was held at Sheffield on Monday. The directors showed a net profit for the year of £16,516, and a dividend of 10 per cent. was recommended. Regret was expressed at the death of the chairman (Mr. W. D. Allen), who came to Sheffield forty years ago, and in conjunction with Mr. now Sir Henry Bessemer, founded the company. The chairman (Mr. Harry Allen) announced that the company was now better than during the past year, and they hoped to meet the holders next year with possibly a better report.

LEVINSTEIN LTD.—The directors of this company at the meeting, after providing for the interest on debentures and a dividend on the preference shares, declared an interim dividend of 10 per cent. on the ordinary shares of the company for the year ended November 30, 1896.

SALT UNION, LTD.—The directors of the Salt Union will receive a dividend on the preference stock at the rate of 7 per cent. and on the ordinary stock at the rate of 1 per cent., carrying forward £12,500.

NATIONAL EXPLOSIVES COMPANY, LTD.—The Report for the year ended December 31, 1896, shows that the profits, including interest, amounted to £26,620. The directors recommended £17,370 to be distributed among the preference, ordinary, and deferred shares; the preference shares receiving a dividend at the rate of 10 per cent. per annum, less 3 per cent. already paid by way of dividend; the ordinary shares a dividend at the rate of 11 per cent. per annum, less 2½ per cent. already paid, while the deferred shares were entitled to the sum of £3,178. 6d. per share. It is proposed to pay £6,682. 6d. off the property account, and to carry forward £598.

Our Book Shelf.

ER FÜR ELECTROCHEMIKER SOWIE TECHNISCHE CHEMIKER
PHYSIKER. By Dr. Neuburger. 682 pp., with Supplement
20 pp. Berlin: Fischer's Technologischer Verlag (M. Krayn).

For everybody who seriously takes up the study of the various with which this book is connected will by this time have had the importance of an acquaintance with the German, so that we need offer no apology for drawing attention to this valuable collection of tables and other electro-chemical data, by Dr. A. Neuburger, the well-known editor of the *Electrochemische Zeitschrift*. The range of subjects is a very wide one, and generally, aided by a very comprehensive index, is arranged in form as to render its stores of information readily accessible. Keep it constantly before us, and have little doubt that many will do the same.

DEVELOPMENT OF THE PERIODIC LAW. By F. P. Venable. 100 pp., including index. Easton: Chemical Publishing Co. 10s. 6d. (\$2.50).

This work is a most useful contribution to the literature of this subject. As the author points out, the difficulty of collecting the information is extant grows as time progresses, and one object has been to meet this difficulty by presenting in something like order a summary of the theories and their precursors.

This book is not intended to be an historical review, though the sketch which precedes the first chapter affords the same in

the gradual growth of thought is traced, from Prout's hypothesis to Mendelev's Triads up to all the later developments of the natural philosopher. A work dealing with such a controversial subject it is not surprising to find a certain tendency to give preference, regarding other points, to individual theories concerning which many are disposed to join issue with the author. As one of his objects is to give a closer study of the subject he handles, perhaps these very preferences are desirable. Apart from personal opinions, however, the book is one that all serious chemists will do well to read, as it is most complete, and constitutes a valuable chronicle and commentary of the modern and similar theories that have been propounded to explain the properties of the elements and their properties.

COURSE OF EXPERIMENTAL CHEMISTRY. By J. Castells. 3rd edition. 244 pp., with index. London: T. Fisher & Co. 1896. 2s. 6d.

This is not a text book in the ordinary sense, this work is veritably a treasure-house of "texts" for teachers and students. In a few pages they are expounded, and excellent lessons they afford. The book is contained in the one word experiment. The teaching adopted is unfortunately all too new. Were it not so we should be pouring under the dual nightmare of foreign competition and "practical" education. All through a splendid course of experimental and quantitative chemistry the student is shown what to do, and made to really experiment by being left to find what happens. It is assumed that the teacher will guide and correct, so that deductions are not finally accepted. It is to be regretted that the use of the preface and introductory remarks will in themselves afford a liberal education to a great many of our elementary teachers, and, possibly, a few professors. It is a book with which to teach science, and not merely gain grants. It is an educational work and tallies wonderfully with the recommendations on science published in these columns last week. It is the first of a new elementary science "text books," and will, we hope, supersede the old style. In the appendix an excellent series of preparations has been added to this edition, which alone makes the price of the entire book. There is no need to advocate such a book. It, or an autotype, must be used if we are to keep up with the production of useful chemists for the next generation.

FOR CHEMICAL STUDENTS. By P. T. Austen. Second edition. 111 pp. London: Chapman and Hall. 1896. 6s. 6d.

This book comprises a collection of lecture notes, and is intended to supplement explanations on points which the author, as a chemist, has found generally give trouble to young students. The philosophical treatment of some of the subjects is, we fear, a little beyond the average young student, as it seems like an attempt to do what cannot be explained.

The dissertations on atoms and molecules are nothing less than smart, being pointed and calculated to expand the powers of thought and conception in students. There are few teachers, even, who would not be the richer by one or two new ideas after reading these notes.

REICHS-CHEMIKER KALENDER FOR 1897.—By Karl Hoffmann. 141 p.p. Leipzig: E. Baldamus. 1897. 4s.

In addition to the customary collection of tables and diary, this calendar contains articles on the German laws for the testing, etc., of butters, wines, sugar, petroleum and such like. There is a special article on sugar manufacturing, and considerable information on pharmaceutical matters. The last half of the calendar is devoted to a directory of German qualified chemists and analysts, whether engaged officially, industrially, or as professors.

TABLES FOR GAS ANALYSIS.—By G. Lunge. Braunschweig: F. Vieweg and Sohn. 1897. 2s.

The Tables are in large type, and in convenient form, and enable the volumes, as shown in the graduated vessels in gas analysis and nitrometer work, etc., to be reduced without calculation and loss of time to normal temperature and pressure. They would be most serviceable to technical chemists. There are five tables in all, which are prefaced with a brief explanation of their use. This explanation is in German.

CATALOGUES AND DIRECTORIES.—We have received the *Directory of Paper-makers for 1897*, which is published by Messrs. Marchant, Singer and Co., of 47, St. Mary Axe, London, E.C., at 1s. It possesses all the familiar features of former years, while several important additions have been made, including a list of paper enamellers who are not actually paper-makers, and a list of Provincial paper-makers' representatives. The classification of trade designations used as water marks has been expanded, and now includes nearly 1,700 items. A *Catalogue of Paint, Brushes, and Painters' Accessories*, as published by Messrs. Hamilton and Co., 96, Clerkenwell-road, E.C., is neatly got up and well illustrated, giving all particulars about their various manufactures in the shape of brushes and painters' supplies. One novelty in particular is a combined shaving brush and soap stick holder. *Crosbie's Paints* are described in a striking catalogue with red and gold covers. Particulars are given of the firm's varnishes, stains, enamels, boiler compo, and oxide paints. A coloured specimen sheet is included, having reference numbers referring to price lists according to quality.

THE POSITION OF CASTOR OIL.

IN their February report, Messrs. C. Windschuegl and Co. state that castor oil is again advancing in value, and in drawing attention to the present position of this article, enter into some of the causes of the considerable fluctuations which this market experienced during the last six months:—

"Reviewing the position this time last year we find the price in Marseilles £18. per ton. f.o.b. for first pressing, with buyers anticipating still lower prices, and operators making considerable forward sales in blank.

"In August, however, the Marseilles quotations had steadily advanced to £22. per ton, on account of the rumours as to the unfavourable conditions of the Indian castor seed crop being confirmed, and it was seen that a further decided rise was inevitable. The prolonged drought in India during September and October caused considerable alarm and anxiety as to the prospects of the next year's crop, and deliveries of oil becoming very irregular, and, in some cases, failing altogether, an abnormally heavy demand was created both for immediate and forward oil. Prices by the last week in November had advanced by leaps and bounds to £31. f.o.b. Marseilles, and to £33. per ton for spot oil in barrels, and a considerable quantity changed hands thereat.

"During December the demand slackened somewhat, buyers having covered their immediate requirements, and this opportunity was seized by speculators having still oversold accounts to cover, to indiscriminately depress prices, oil for shipment in May-December, 1897, being nominally offered by them as low as £22. f.o.b. The delivery, however, being so distant, this met with very little response on the part of buyers, and business was practically at a standstill. Meanwhile actual holders of oil remained firm, as it was apparent that this position was artificial and could not be maintained, the potent features in the original advance not having materially altered. The correctness of this view is admitted by the fact that towards the end of January, with a renewed demand setting in, the market had recovered to a very great extent, the Marseilles quotation being £26. 10s. buyers.

"The present lowest price for February-March shipment is £27 10s. per ton f.o.b. without engagement, with a decidedly upward tendency, the position being briefly as follows:—

"The stocks of seed and oil are small, and the prospects of the seed crop are very unfavourable, as the plant has greatly suffered through the want of rain last year. The plague raging in India seriously interferes with business there, and shipments of what seed there is are practically impossible. The French Government, in order to prevent importation of the plague into France, have officially announced that the landing in France of all cargoes in vessels coming from plague-infected localities is to be interdicted absolutely. It is therefore very likely that several of the mills in Marseilles may have to close in the absence of seed, and £30 per ton, f.o.b., Marseilles is said to be asked now."

Legal Intelligence.

ROYAL COURT OF JUSTICE.

(Before Mr. Justice Wright.)

HUSSEY JONES AND CO. v. THE CROWN CHEMICAL CO.

This action was heard at the Royal Courts of Justice, Strand, London, on the 4th February. It was brought by the plaintiffs, Messrs. Hussey Jones and Co., of Palmerston Buildings, London, East India merchants, against the Crown Chemical Co., of the Livesey Chemical Works, near Blackburn, to recover possession of nine casks of carbonate of ammonia or, in the alternative, their value.

The plaintiffs' case was that in the month of November, 1895, they had purchased from defendant company, and shipped, nine casks of carbonate of ammonia to Madras. When the carbonate of ammonia arrived at Madras the plaintiffs' customer found that he had made a mistake in his order, and the goods were consequently re-shipped back to London. On their return to London the plaintiffs wrote to Messrs. Bessler, Waechter and Co., the London agents of the defendant company, asking them what price they would allow for the returned goods. The goods were subsequently, at the suggestion of Messrs. Bessler and Co., sent to the defendant company in order that they might examine the goods and state what price they would allow for them.

The plaintiffs alleged that the defendant company wrongfully worked up the carbonate of ammonia, although it had only been sent to them in order that they might estimate its value. After the defendant company had worked up the ammonia they made an offer to take it back at three-farthings per pound. As the plaintiffs had originally paid 3½d. per pound for the carbonate of ammonia this offer was refused. The plaintiffs subsequently brought the action to recover damages from the defendant company for wrongfully working up the carbonate of ammonia. Mr. Cecil H. Chapman appeared for the plaintiff and Mr. Scarlett for the defendant company.

The judge, after reading the correspondence which had passed between the parties, held that the defendant company was clearly wrong in working up the carbonate of ammonia, and that the only question for him to decide was what value should be allowed for the carbonate of ammonia after its return from Madras. After hearing expert evidence on that point, the judge considered that 2d per pound was the fair value to be allowed for the returned goods, and he therefore gave judgment for the plaintiffs for £28. and the costs of the action.

THE AMERICAN PHOSPHATE INDUSTRY.

THE Southern phosphate miners did not have a prosperous year in 1896, and there was a large decrease in production. The figures for the year are as follows, in tons:—

	1895.	1896.		
	Total.	Foreign.	Domestic.	Total.
South Carolina.....	515,734	82,268	192,800	275,060
Florida	530,356	395,171	103,894	499,065
Tennessee	45,329	.....	42,911	42,911
North Carolina.....	7,500	.....	7,418	7,418

Total 1,098,519 477,431 347,023 824,454

The total decrease from 1895 was therefore 274,065 tons, or 25 per cent. The South Carolina mines showed the greatest decrease—about 46 per cent.—the reduction in Florida being comparatively slight. The new mines in Tennessee did not add anything to the total for the year though their shipments will probably be felt in 1897.

A good reason for the decrease in the shipments is found in the low prices obtained. Phosphate rock, 58 to 60 per cent., sold in Charleston from 3 25 dols. per ton down to 3 dols., while river rock sold down to 2 85 dols., the closing prices being the lowest of the year. The foreign demand continued to decrease, owing to the competition of the Algerian phosphates and the growing use of basic slag as a source of phosphoric acid; while there was hardly any increase in the domestic demand to make up for the diminished exports. At the prices noted there can be very little, if any, profit in mining phosphate.

Correspondence.

"We do not hold ourselves responsible for the opinions expressed by our correspondents."

SULPHATE OF AMMONIA.

(To the Editor of the Chemical Trade Journal.)

SIR,—Referring to the excellent suggestion of Mr. Carull last issue, would it not be a little better to shorten the name to SULPHATE?

As a parallel instance, "Nitro-Phosphate" is well known, not think there would be any risk of confusion.—I am, yours,
Dashwood House, E.C., E. KENNARD M.
Feb. 15, 1897.

SAFE AND UNSAFE OILS.

(To the Editor of the Chemical Trade Journal.)

SIR,—I cannot refrain from expressing my appreciation endeavours in the interest of truth and fairness, as instance article anent the unprincipled scheming of the S.O. Co. in the Iowa, which appeared in your last issue. To make any attempt to it would be superfluous, for to an outsider it would seem article must ring the death-knell of the S.O. Co. in the Parliamentary Select Committee, if, as Englishmen, they field and no favour to all comers. The chicanery which is most repulsive, and utterly opposed to the principles of majority of our business men.

I and many others have been astounded during the sitting Select Committee to find men whom the public have implicitly either giving evidence which they must know to be garbled, on a subject they know nothing of, as your correspondent think the time has come when evidence given before Parliamentary Commissions should be made more binding on the witnesses man knows and what he states are very often totally different Yours, &c. PRO BONO P

Selected Correspondence

SULPHATE OF AMMONIA.

(To the Editor of the Daily Post.)

SIR,—The public in general and agriculturists in particular indebted to Mr. Carulla for having so clearly shown in your issue the greater value of sulphate of ammonia, or gas lime, in comparison with nitrate of soda, as a nitrogenous manure.

It may interest some of your readers to know that on Lord home farm at Dalmeny Park no nitrate of soda whatever is used for experimental purposes; and Mr. J. Hunter, F.I.C., F.C. analyst for Midlothian, who conducted a series of experiments on Lord Rosebery's behalf, reports to the agricultural Glasgow Technical College that "nitrate of soda, no doubt, increase the bulk of the crop, but the increase consisted water, while the nitrogenous compounds of the crop were la amide or less valuable form. On the other hand, the crops had the nitrogen applied in the form of sulphate of ammonia bulky as those grown with nitrate of soda, and were superior in feeding value, for the nitrogenous compounds in largely in the form of albuminoids, or digestible flesh form Hunter pointed out that in every case the analysis of the turnips grown with sulphate of ammonia showed a much higher value than those grown with nitrate of soda."

In the neighbourhood of Birmingham, where "gas lime" obtained at so low a rate, it is satisfactory to find that man can already bear testimony to its high value as an artificial manure. Birmingham, February 14. H. S. T.

[Either this correspondent is the victim of a printer's error under a misapprehension. Gas lime has manurial value scarcely to be classed with sulphate.—En. C.7.]

(To the Editor of the Daily Post.)

SIR,—For some years past I have endeavoured, by such means as the circumstances demanded, to impress farmers in my own districts to make use of the above value instead of "nitrate." One of the greatest drawbacks to extended use has been the cost of transit from the large producing this compound to the agricultural districts. Railways have been most baneful. These, in view of recent agitation, may be reduced on the application of a number of agriculturists

the writer of the letter having reference to this matter in your 10th, points out, the name "sulphate of ammonia" does not do justice to the farmer its superiority over the imported nitrate of nitrogenous manurial agent. I doubt whether "nitrogenous" the term proposed by Mr. Carulla, will meet the case. The Board of Agriculture pursue the same course as they have in the case of Miss Ormerod's researches on insect pests, and let from time to time setting forth the advantages of using nitrate of ammonia, in preference to the imported nitrate of certain manurial purposes? Were special efforts taken to these pamphlets in the recognised *rendezvous* of the farmers' towns, and to place them in the hands of the retail sellers of manures, the intrinsic value of sulphate of ammonia for rural purposes would soon be widely known, and scarcely need me to bring about this desirable end.

T. VAUGHAN HUGHES
(A District Analyst under the Fertilisers and Feeding Stuffs Act).

gham, February 12.

IGN COMPETITION AND OUR PATENT LAWS.

(To the Editor of the Manchester Guardian.)

In your report of the proceedings of the Board of the Chamber of Commerce, and also in a leaderette attention to certain defects of our Patent Laws, and at last Thursday's of Parliament Captain Phillpotts put several questions to Mr. Ritchie regarding the same subject. About ten years ago, in an address to the members of the Manchester section of the Society of Chemical

I pointed out many anomalies in our Patent Laws, and tried to show why and how they acted injuriously on our country, and the undue advantage they gave to foreign patentees. I urged the establishment of sectional committees, which were then instituted in our chambers, believing that this association would have more powerful influence than a private individual in bringing the grievances of our industries. A chemical section was formed, which at once set to work and fully discussed the harmfulness of our Patent Laws in regard to the development of certain industries. After many and most careful deliberations, a list of recommendations were brought before the directors for their consideration, and although our suggestions were approved, no action was promised, nothing came out of them, because the section was shortly afterwards dissolved.

Recent proceedings in Parliament have again given prominence to the important question, so little understood by the public and of such importance to our industries. It is, however, to be deplored that the splendid opportunity was lost for thoroughly ventilating and clearing up at least one of the iniquities of our Patent Laws, viz., section 22, to which Mr. Ritchie referred Captain Phillpotts, and which latter and others apparently considered a sufficient answer to the question. Mr. Ritchie stated, when referring to section 22, that the sense of any decision to the contrary he was not satisfied that it was not effectual as it now stood to meet the cases referred to in Phillpotts. I will endeavour to show you that this answer is false and misleading, no doubt for want of better information on the part of the President of the Board of Trade. It is quite true that on the contrary was ever given, for the simple reason that, I know, no single application has ever been made, or is likely to be, to the Board, in spite of the fact that the Act has been in force for fourteen years. The reason is that under this section the patentee can always escape giving a refusal to the applicant, and thus bringing himself within this section. Section 22, (a) clause (i) in so many loopholes that he can easily evade it.

Section 22 reads as follows:—"If on the petition of any person it is referred to the Board of Trade that by reason of the default of a patentee in granting licences on reasonable terms (clause a) the patent is not being worked in the United Kingdom, the Board may order the patentee to grant licences," &c. There is no time fixed within which the patentee must "work" his patent, nor is there any definition as to what he must "work" it. It is left, for want of a more definite wording, to the foreign patentee to decide whether he will "work" his patent within, say, five or eight or twelve years! The sense of the wording of this section is that for all practical purposes it is absolutely ineffective. Supposing an application is made to the Board for the grant of a licence to an English applicant, the choice between two replies to evade the Act. He may inform you that he intends to work his patent in this country, or that he is already working it, for he may have put up a dummy shop and be continuing to import into this country the article made abroad. Section 22 (clause a) neither says that he must work his patent to such an extent as to supply the demand, nor even work it on a manufacturing scale.

Captain Phillpotts inquired whether the President would take steps in the interests of home industries and home labour to bring the Patent Laws of the United Kingdom into conformity with those of every other European country. Mr. Ritchie replied that our law is effectual, and refers him, as already stated, to section 22. Now, let us look, for instance, to France. By the French law, article 32, clauses 2 and 3, it is enacted that a patentee shall be deprived of all his rights if he has not worked his invention in France within the term of two years from the date of the signature of his patent, or if he has ceased to work it during two consecutive years, or if he has introduced into France articles manufactured abroad, and similar to those which are protected by his patent. I fail to see, sir, any conformity between section 22 and the corresponding section in the French law. The result is that in France foreign patentees have invested very large sums of money, and have given employment to a large number of native workmen, and benefited other collateral trades. For the monopoly which France grants to the foreign patentee she receives in return considerable advantages to her trades and industries. This country, on the other hand, grants a foreign patentee a monopoly for fourteen years, and permits a man who contributes not one farthing to our rates and taxes, and employs not a single English workman, to reap a large profit out of an article which our foreign competitors can probably secure at half the price. It is my opinion that our backward position in the chemical and allied industries compared with that of Germany is not altogether due to their superior technical and scientific education, but may also be accounted for to some extent by our defective Patent Laws.

I am afraid that I have already occupied too much of your valuable space, and with your permission I shall refer to other defects of our Patent Laws in your next issue.—Yours, etc.,

IVAN LEVINSTEIN.

(To the Editor of the Manchester Guardian.)

SIR,—In my letter published in your issue of Tuesday I referred to the inefficiency of section 22. With your permission I will now point out other serious defects in our Patent Laws.

It is well known that any foreigner, whether he has applied in his native country for a particular patent or not, is entitled to the grant of an English patent. It is, however, probably not so well known to many of your readers that a foreigner can uphold a patent in England, even where the grant of it has been refused to him by the Patent Office of his own country, on the ground of want of novelty or for similar reasons. More remarkable still is the fact that a foreign patentee who holds a patent for an alleged invention both in England and in his own country, may uphold his English patent after the highest courts of law in his own country have declared his patent null and void owing to its want of utility or novelty. At the present day foreigners hold patents in England, the acceptance of which has been refused by their own Patent Office for very good reasons in the first instance, or which have been declared null and void on petition, or which have lapsed for some other cause. According to our law, however, none of these reasons vitiates their patents in the United Kingdom. Now, the mischief which is done by this extraordinary anomaly in our law must be obvious to anyone. The German patentee, for example, who could not secure a patent in his own country, or whose patent has been upset by his own law courts, may come to England and pounce upon every one who ventures to approach the border line of his alleged invention. Further, he exacts from the British public the most exorbitant prices for an article which in Germany has become public property, and which is there frequently sold at less than half the price demanded in the home markets.

Are we not really doing our best to foster and assist foreign competition? Can it be denied that we thus pay to our rivals a heavy premium, and assist them to undersell us in the markets of the world? By our patent laws we impede the development of our industries, and seriously limit the scope of our native talent and ingenuity. Every workman, every ratepayer in this country, ought to raise his voice against this anomalous tax on our trades and industries. Now I ask you—Can we afford this foolish generosity? It is a fact that about 75 per cent. of high-class manufactured drugs and preparations prescribed by the medical profession, of the goods that chemists and druggists deal in, of articles and chemicals used in photography, and the bulk of fine chemicals and colours used by our dyers and printers, are made in and imported from Germany. My humble opinion is that we can ill afford this kind of generosity, and that the money thus lost to us by our defective laws might well be spent to still further extend the movement for the highest technical education.

There are still other anomalies in our Patent Laws to which I will only briefly refer. There is section 18, for instance—a section drafted for the purpose, it would almost seem, of permitting the greatest possible abuse of our laws by alleged inventions. By this section (Amendment of Patents) you may strike out during the whole term of your patent anything you please as long as you do not make your invention substantially larger than or substantially different from the

invention claimed. Our foreign friends know our laws generally better than we do, and with this knowledge they make their patents in this country as large and ambiguous as possible. If, for example, the patentee has really discovered one new compound or one new reaction, he patents perhaps fifty different compounds of one species which he really knows, he includes whole groups—some of them may, others may not give the claimed results—he speculates and plays a game of chance, but our provident law will not allow him to lose, for if he has made a bad shot and finds out that some or many of them will not work, he strikes them all out and applies for an amendment, which, under the existing law, the Comptroller must grant to him. There is further the important question of a preliminary examination before a patent is granted, and in chemical patents of insisting upon the production of specimens of all chemicals used and of the resulting bodies alleged to have been obtained in a manner similar to the requirements of the German Patent Office. This would prevent prospective patentees from including among the alleged inventions for which they claim the protection of a patent a number of chemical compounds and reactions which they have never beheld with their eyes, and which only possess at the date of the patent a possible, theoretical existence.

I have endeavoured to make clear to you and to your readers some disadvantages under which our industries and trades are labouring in consequence of our defective law; and I venture to suggest that our members of Parliament should be urged to press the Government for the appointment of a Royal Commission to take evidence, and to thoroughly investigate the question. Royal Commissions have been appointed for the investigation of questions of considerably less importance to our industry. In the meantime our members should be properly coached, so that they may not be so readily silenced by the President or by some other member of the Board of Trade as was the case on Thursday last week.—I am, etc.,

IVAN LEVINSTEIN.

Fallowfield, February 15, 1897.

THE MERSEY AND IRWELL COMMITTEE. (To the Editor of the Manchester Courier.)

Sir,—The report of the last meeting of this committee, and the position which they are taking in regard to the Manchester sewage effluent, are interesting reading. Things are going from bad to worse. The previous report on the condition of the Manchester effluent showed it to be not nearly so bad as it is now, when it has to be condemned as one of the worst with which the committee have to deal. Surely the time will come when even the Manchester Rivers Committee and its chairman will accept the inevitable, and make up their minds that the precipitant they are now employing is utterly useless, whatever chemical experts may say or do. The Rivers Committee would seem to have no other object but keeping down the cost, and they are therefore turning out an effluent which will never satisfy the Mersey and Irwell Committee. Why will they not spend a little more in obtaining a precipitant which will accomplish all they require, instead of increasing the salaries of the men who have landed them in their present dilemma? The sooner the City Surveyor informs the committee that the present treatment will never answer, the better for all concerned. Experience is beyond all theory, and the committee have had experience enough now to justify them in exercising their own knowledge, and condemning coppers as a precipitant. Assuming that the hair-brained culvert scheme shall be sanctioned. Even then the Mersey and Irwell Committee have made it perfectly plain that the effluent will have to be first precipitated and purified before they can permit it to enter the river, so that the Rivers Committee will then be no nearer an end of their troubles than they are now. Would it not, therefore, be a wise and prudent course for the Rivers Committee to find, by experiments, what precipitant will best suit their needs, and adopt it in spite of any recommendation or advice they may receive from experts or others? It is perfectly certain that if the Rivers Committee would go into the matter with an open mind, they would have little difficulty in finding a satisfactory precipitant. Why they will keep on in their present course, which is leading them further and further from what is desired, is one of those things which the uninitiated fail to comprehend. Whatever scheme is formulated, one thing is clear, and that is that there is no escape from efficient precipitation.—Yours, &c.,

PRECIPITATION.

SOUTH METROPOLITAN GAS COMPANY.—The directors' report for the half-year ended December 31, 1896, states that the profit on the half-year's working is sufficient to pay a dividend equal to the last. This result is due to an increase of 10 per cent. in the business coupled with small savings on almost every item of expenditure over which the company and its servants have control. Coke has produced only 4s. 7½d. per ton of coal used, while sulphate of ammonia, which sold in 1894 at £13. 15s. per ton, gradually dropped to £7. in the last half-year, the lowest price reached during previous depressions having been £10. per ton. Had the prices of products been even equal to the very low rates in the corresponding half-year there would have been an addition of £9,000. to the revenue.

Trade Notes.

THE ELLIOTT-CRESSON MEDAL.—We learn that the Hall of the Franklin Institute of Philadelphia have awarded the Elliott-Cresson medal to Mr. H. V. Castner, of Oldbury, Birmingham, for his electrolytic process for the manufacture of caustic soda and bleaching powder.

"NITROGENOUS SULPHATE"—We see from the editorial comments of several contemporaries that Mr. Carulla's proposal to re-name sulphate of ammonia, as communicated in our correspondence column last week, has been received with considerable favour. There is further correspondence on the matter in this issue.

PETROLEUM ACCIDENT.—About ten o'clock on Monday night, Peter Bennett, rag gatherer, of Spencer's Yard, Bury, Lancashire, upset a petroleum lamp and set his clothing on fire. He ran into the street, where a policeman and others extinguished the flames. He is now lying at the infirmary in a precarious condition.

NEW RIVER POLLUTION BILL.—The Rivers Pollution Prevention Bill has been issued, the names of Sir F. Powell, Sir J. Brunner, Sir H. Howorth, and Mr. Brigg appearing on it. The principal object of the Bill is to improve the law for preventing the pollution of streams by extending to County Councils, Joint Committees, and River Boards in England the main provisions of the Mersey and Irwell Act and the West Riding Act.

SOCIETY OF CHEMICAL INDUSTRY: Nottingham Section.—The fourth meeting of the session will be held on Wednesday, February 24, at University College, Nottingham, at 7.30 p.m. Business: (1) Discussion on Mr. R. M. Craven's paper on "Some Properties of certain Metallic Phosphates," Society's journal, p. 29-30; (2) note on "Explosibility of Liquid Acetylene," by Professor F. Clowes, D.Sc.; (3) "Apparatus for Estimating the Dissolved Gases in Water," by Professor Clowes, D.Sc.

STEEL BARRELS FOR VITRIOL.—We learn from the Iron and Steel Plant Co., Ltd., of 3, Crown Court, Old Broad-street, London, that they have for the second time received an order for a quantity of Caird's stamped steel barrels from Captain Andree, for the second balloon expedition. These barrels are required for the transportation of sulphuric acid, and are to be exactly the same as supplied for his first attempt. They are also executing a number of orders from chemical manufacturers in this country for the carriage of concentrated sulphuric acid.

A GERMAN MONOPOLY AND THE PATENT LAWS.—The President of the Manchester Chamber of Commerce reported that a statement had been communicated to the Chamber with reference to a long-standing grievance of British calico printers and other manufacturers, who have for many years been compelled to pay prices for certain materials produced in Germany, for which patent rights are held much higher than those charged to consumers in other countries. This statement raised an important question as to the defective provisions of the British patent laws. It was referred for full consideration of the whole subject to the Chemical Sectional Committee.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are quiet, and prices seem to be variably quoted between the limits of 3s. and 3s. 3d. for 90's, while 2s. 10d. still obtains for 50/90's. Carboic acids are firm, 60% crude now being quoted 2s. 4d.; crystals (40%) still stand at 7½d., but are strong thereat. Liquid unchanged. Naphthas are virtually unaltered—solvent being firm at 1s. 7d. to 1s. 8d., and crude steady at 1s. 1d. Anthracene has been moving rather better, but values are easy. Aniline oil and salt are down another farthing from last week's quotation. Pitch is being closely watched. Value is 23s. to 23s. 6d., f.o.b. East Coast. Creosots unchanged.

Sulphate of ammonia is apparently quite neglected by consumers, while the demand from dealers is fitful at the best. Makers will do well not to press their sales more than possible, as so doing very materially weakens their position and the tone of the market. Closing prompt values are:—London outside makes £7. 15s., Liverpool £7. 15s., Hull and Leith £7. 15s. Beckton is reported as offering for May-August at £7. 10s.

MISCELLANEOUS CHEMICAL MARKET.

The alkali market presents no features of special interest at the moment. Values remain steady for all products, and there is a moderate demand both for home and export. Bleaching powder is steady, at £6 10s., f.o.b. makers' works; forward contracts at

Hardwoods, f.o.b., £6. 15s.; f.o.b. Tyne, the price is lower. Chlorates a little easier, but nominally unchanged, at 5d. per lb. for soda. Ammonia alkali is mainly £3. 7s. 6d., bags, f.o.r. for home trade. For export, reported even below £2. per ton f.o.b. Soda crystals and are unaltered. Caustic soda is steady, and subject to some according to market, the prices standing as follows:—Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 2s. 6d. per ton, 10-ton lots and upwards. Sulphate of irregular, at £19. to £19. 5s., f.o.b. Sulphur firm, at 6d., f.o.r. There is a continued good inquiry for vitriol and acid. Brown acetate of lime is steady, at £4. 12s. 6d., 7s. 6d. nett, Manchester district; grey quiet, at £8. 10s. Demand is quiet for acetate of lead, and selling on the spot at £23., c.i.f. Brown sugar of lead, £15. 10s. nett, lead dearer. In aniline oil and salt the tendency is rather arboric acid, crystals, steady, meantime at 7½d. for 39/40%, strong market. Potash, caustic and carbonate, continue in rest at full prices. Yellow prussiate of potash, 5¼d. per lb. of soda, 4¼d. per lb. Oxalic acid steady. Cyanide and 98/100%, 11d. to 11½d. per lb. There is a firmer white powdered arsenic, and higher prices ruling, at £24. 5s. per ton. Nitrate of soda has eased a little in price, and spot and forward delivery, at 8s. per cwt. For chemicals the demand is quiet, and values as whole are steady.

REPORT ON MANURE MATERIAL.

Market remains very quiet, but the finer weather may be expected greater activity and some improvement in values. The for mineral phosphates are unchanged. United Kingdom manufacturers are not much interested in purchasing ahead, finding tempting prices, but there continues to be fair inquiry from the Continent and Baltic. There is nothing fresh to report in bones, in the absence of handy cargoes offering. Bombay 1, afloat and shortly due, offers freely at £3. 15s. and d. per ton, according to quality, and there would probably be good lines at 1s. 3d. per ton less. Nitrate of soda is quiet, at 8s. 1½d. to 8s. 3d. per cwt., according to quality, on cargoes are worth about 8s. 3d. per cwt. if of handy size. There is more demand for miscellaneous nitrogenous and supplies being small some advance in values has been. Superphosphates offer freely at prices unprecedented in any year, and they will likely compete more keenly with ground than has hitherto been the case.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil is dull though there are a few more sales to report, been done on spot at £18. 15s., and Lagos at £20. 15s. to 5d., ex quay. Soft oils £19 15s., transit. Olive continues at full prices, with a fairly active demand. Linseed is with- still standing at 16s. to 17s. 6d. per cwt for Liverpool export casks. Cottonseed is steady, though there is no in values, Liverpool refined remaining at 15s. 6d. to 16s. 3d. Castor oil is very firm for all qualities. Good seconds and first pressure French, both stand at 3d. per lb. Sales are equent. Tallow is without change. Resin continues to move at old full prices. The demand is about equal for all grades. Turpentine are a little dearer, sellers now asking 21s. 3d. per a fair enquiry thereat. Petroleum steady. American 6¼d. and Russian refined 5½d. per gallon.

JRS.—Prices are steady, and practically without change. Oxfordshire, common, £10., medium, £12., best, £15., 4s., common, 40s.; medium, 50s., best, 60s.; Welsh, best, 4s., 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s., J.C., 65s. Umber: 40s. to 45s. White lead, £16. unchanged. Venetian red, £6. to £10. Cobalt: Pre- 1s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

the week there has been rather more of movement going on the standard chemicals. Inquiry is almost briskly afoot for supplies and shipments against the opening of the Baltic, which some foresee to be slightly earlier this year than the. There have been no changes in any of the common quotations only change of any moment is a further drop in sulphate. Sulphate of ammonia is to all intents and purposes what a week ago, hardly anything on the move for spot and nothing

at all for forward. Two spot sales at the close of the week were done at £7. 15s., f.o.b. Leith. Mineral oils and paraffins are all very weak, with the exception of lubricating oils, which are steady at good prices. The drop in solid paraffins has been leading to a conference between the representatives of the chief candle factories of England and Scotland, to take place in Liverpool to-day (Tuesday).

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/62°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4¼d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash, 4¼d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 4½d.; sulphate of ammonia, £7. 15s. prompt, f.o.b. Leith; salammioniac, first and second white, £35. and £33. nett, any port; sulphate of copper, £19., less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 7½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were nil.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 46s. 5½d., Middlesbrough 40s. cash, and hematite 49s. 5½d. Copper, firm: Chili bars, G. O. B.'s and G. M. B.'s, closed at £51. 5s. to £51. 10s., cash, and £51. 12s. 6d. to £51. 17s. 6d. three months. Tin, uncertain: Straits closed at £60. 16s. 3d. to £61. 6s. 3d., cash, and £61. 8s. 9d. to £61. 18s. 9d. three months; Australian, £62. 6s. 3d.; English ingots, £65. 10s. Lead: firmer, Spanish, £11. 12s. 6d. to £11. 13s. 9d.; English, £11. 15s. to £11. 17s. 6d. Silesian spelter, ordinary, £17. 13s. 9d. to £17. 15s. Nickel, 1s. 2½d. Antimony, £31. to £31. 10s. Quicksilver: First hands, £6. 17s. 6d.; second hands, £6. 16s. 6d. Copper shares, firm: Cape, 2½ to 2½; Copiapo, 2½ to 2½; Libiola, 2½ to 2½; Mason and Barry, 2½ to 2½; Rio Tinto, 27½ to 27½; Tharsis, 6½ to 6½.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are only in moderate demand, and prices generally remain unaltered. Caustic, 76/77%, £9., and 70% £7. 10s. per ton. Soda crystals £2. 2s. 6d. per ton, gross weight, locally. Sulphur scarce at £5. per ton.

Other prices as under:—

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett, do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett, hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt steady, at 9s. per ton, f.o.b. Tees.

COALS.—In the coal trade business, if anything, is slightly easier, the milder weather having an effect upon the demand of certain qualities. Coke, however, is in stronger demand, and producers are asking higher prices. Best Northumbrian steam, 7s. 9d. to 8s. 6d. per ton; second qualities, 6s. 9d. to 7s. 6d. per ton; small steam, 3s. to 3s. 6d. per ton. Gas coals, 7s. 6d. to 8s. 6d. per ton. Bunker coals, 7s. 3d. to 8s. per ton. Household coals, 10s. to 11s. per ton. Coke firm at 15s. to 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The satisfaction at the Hull and Barnsley Railway dividend of 2% appears to be general, and the returns of traffic receipts continue to improve. The net gain on the week has been £649, and upon six weeks £1,207. Amongst the ships due here there are cargoes of 2,700 tons of cottonseed from Alexandria, 40 tons cake from Odessa, 110 tons of colza seed from Odessa, and a steamer with petroleum from Philadelphia. Linseed oil is quiet. Spot, 13s. 10½d. naked; forward March-April, 14s. 4½d.; May-August, 15s.; boiled and refined £1. to £1. 10s. per ton extra. Refined cotton oil naked, 13s. 3d. sellers; forward February-April, 13s. 4½d.; May-August, 14s. 3d. Crude cotton is quoted, spot 12s. naked; barrels, £1. 10s. and ordinary casks £1. per ton extra; filtered refined cotton oil is quoted 15s. to £1. per ton extra. American spirits of turpentine, 21s. 3d. to 21s. 6d. per cwt. Castor oil maintains its price, yet there appears many anxious sellers, at prices varying from 3d. to 3½d. per lb. for first pressure. Olive oil unchanged. Green olive oil soaps (Italian), 60% fatty acids, £16. per ton; distilled oleines, from £16. per ton; saponified, from £18. per ton; Yorkshire grease, £8. to £9. per ton. Sod oil in quiet demand; cod oil, from £17. to £19. per ton; Danish butter, 109s. to 112s.; finest Friesland, 100s. to 105s.; colonial, 96s. to 102s.; Kiel, 96s. to 100s. per cwt.

CAKES.—The huge supply, and low price of maize, being at 13s. per quarter, only £3 0s. 8d. per ton; Linseed cakes dull; 95% pure, £6. 10s.; oilcakes, £5 10s.; Americans, £6. 2s. 6d.; Russians, £6. 7s. 6d. per ton. Cotton cakes rather steadier, but orders slow; best makes, £3. 17s. 6d.; seconds, £3. 15s. Rape cakes (Black Sea), £3. 7s. 6d. per ton.

PAINTS.—At the annual meeting of Messrs. Reckitt and Sons Limited it may be interesting to observe that a dividend of 20 per cent. was declared. Paint manufacturers are busy, and prices are unchanged.

New Companies.

Ransom Patents Syndicate, Ltd.—CAPITAL, £100. in shares of £1. each. This company has been formed to acquire and turn to account certain patents relating to the refining and decolorization of sugar.

Artificial Leather Syndicate, Ltd.—CAPITAL, £10,000. in shares of £5. each. This company has been formed to acquire and certain patents and inventions. The subscribers to the memorandum of association are:—T. R. Stephens, 51, Salisbury-road, Hanley, cashier; F. E. E. Smith, 119, Whitehall-road, Small Heath, Birmingham, clerk; G. Holmes, School-road, Moseley, Birmingham, clerk; J. B. Holmes, School-road, Moseley, Birmingham, clerk; J. E. Ward, Queenswood-road, Moseley, chartered accountant; 14, Temple-street, Birmingham, accountant; A. E. Phillips, Temple-street, Birmingham, accountant.

Normanby Brick Co., Ltd.—CAPITAL, £55,000. in £5 shares. This company has been formed to carry on the business of cement brick, etc., manufacturers at Normanby, Yorkshire. The subscribers to the memorandum of association are:—J. Johnsson, 55, Queen's-Walk, coal owner; W. H. Panton, Alexandria Hotel, Birmingham, engineer; R. T. Hughes, 3, Roslyn Villas, Saltburn, brick factor; F. McBain, Royal Exchange, Middlesbrough, accountant; G. B. Mancarrow, Royal Exchange, Middlesbrough, chartered accountant; G. B. Jackson, 7 Exchange-place, Middlesbrough, solicitor; F. H. Jackson, 7, Exchange-place, Middlesbrough, solicitor.

Asbestos and Asbestic Co., Ltd.—CAPITAL, £500,000. in shares of £10. each. This company has been formed to acquire asbestos and other mines. The subscribers to the memorandum of association are:—G. W. T. Shrubshall, 1, Mostyn-road, Brixton, clerk; W. J. 14, Little Albany-street, Regent's Park, N.W., clerk; D. E. 1, Larcom-street, S.E., merchant; L. T. Whitehall, 5, Homes S.W., clerk; J. Kelly, 10, Catherine-street, Buck's Gate, geologist; F. W. Hall, 21, Mexfield-road, Putney, S.W., accountant; Bass, 25, Dartmouth Park-road, Highgate, exporter.

Wilton Chemical Works Co., Ltd.—CAPITAL, £17,400. in £5. preference shares, and 1,800 ordinary shares of £8. each. This company has been formed to carry on the business of chemical factories. The subscribers to the memorandum of association are:—H. Steven, 142, N. Woodside-road, Glasgow, ironfounder; Steven, 142, N. Woodside-road, Glasgow, ironfounder; R. 142, N. Woodside-road, Glasgow, clerk; G. Bathgate, 142, N. Woodside-road, Glasgow, clerk; R. Cairns, 142, N. Woodside-road, Glasgow, clerk; J. Kelly, 142, N. Woodside-road, Glasgow, clerk.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending February 6th.

Acetate of Lime—
U. States, 375 bgs. J. R. Francis & Co.

Acetic Acid—
Holland, 98 pks. Little & Johnston
" 93 A. & M. Zimmermann

Acetone—
Holland, 12 drs. T. H. Lee

Alkali—
France, 110 c. J. Barber & Co.

Antimony Ore—
Japan, 12 t. R. Warner & Co.

Arsenic—
Melbourne, 55 brls. G. H. Adams & Co.

Asbestos—
Germany, £30 W. Byford
" 7 Craven & Co.
Italy, 98 Bender & Co.

" 670 J. Barber & Co.
" 475 Brit. Asbestos Co.
" 793 Pickford & Co.

" 78 Imperial Asbestos Co.
" 186 London Asbestos Co.
Cape, 45 L. & I. D. Jt. Co.

Barium Hydrate—
Belgium, 7 cks. W. G. Blagden

Barytes—
Holland, 108 cks. W. Harrison & Co.

" 44 Taylor Bros. & Co.

" 40 E. J. Diggins

Germany, 21 J. L. Lyon & Co.

" 20 Blandell, Spence & Co.

" 10 Robertson, Selley & Co.

Holland, 7 Brandram Bros. & Co.

" 1 L. & N. W. Rly. Co.
Belgium, 17 J. L. Lyon & Co.
" 69 W. Harrison & Co.
" 200 bgs. Burrell & Co.

Bleaching Powder—
Holland, 22 cks. J. M. Steel & Co.

Boracic Acid—
Italy, 12 pks. Orion Chem. Co.

" 9 Marshall & French

Camphor—
Germany, 2 brls. Grosscurth & Luboldt

Caoutchouc—
Madagascar, 24 c. L. & I. D. Jt. Co.

Belgium, 5 Société John Cockerill

France, 22 J. Harrison

Madagascar, 13 Procter Bros.

Penang, 62 Butler's Wf. Ld.

Singapore, 19 Huttenbach & Co.

" 174 L. & I. D. Jt. Co.

Madagascar, 30 Prop. Bull Wf.

Zanzibar, 16 L. & I. D. Jt. Co.

Singapore, 111 Anderson, Weber & Co.

U. States, 48 Salsel Bros.

Castor Oil—
France, 75 brls. J. T. Morton

" 20 cks. F. Boehm

Italy, 10 B. G. Lennon & Co.

" 30 C. Windschugel & Co.

France, 110 May, Roberts & Co.

Italy, 10 May, Roberts & Co.

Caustic Potash—
France, 18 drs. W. E. Cole

" 30 Petri Bros.

" 60 F. W. Berk & Co.

Holland, 1 J. M. Steel & Co.

France, 20 South Devon Wf. Co.

" 40 Carey & Sons

Chemicals (otherwise underdescribed)

France, 46 Mory & Co.

Germany, 52 L. & I. D. Jt. Co.

Holland, 15 H. Lorenz

Denmark, 33 Bailey & Leatham

Holland, 31 Philipps & Graves

" 25 Horne, Son & Co.

Belgium, 28 O. Scholzig

U. States, 336 E. E. Bailes

" 510 F. Parker

Germany, 18 J. M. Steel & Co.

Holland, 32 Little & Johnston

Belgium, 280 Société John Cockerill

Germany, 666 T. H. Lee

" 516 A. & M. Zimmermann

Citrate of Lime—
Italy, 23 cks. B. Jacob & Sons

Copperas—
Holland, 10 cks. A. & M. Zimmermann

Cream of Tartar—
France, 10 cks. W. C. Bacon & Co.

Spain, 5 B. & F. Wf. Co.

Italy, 20 "

France, 12 "

Cresoline—
U. States, 15 cs. Lunham & Moore

Dextrine—
Germany, 200 bgs. Hernu, Peron & Co.

" 50 M. H. Voss

" 80 H. Lorenz

Dyestuffs—
Annatto
Ceylon, 40 cs. Eastwood & Holt

Argols
Italy, 772 bgs. B. Jacob & Sons

" 166 cks. Thames S. T. & L. Co., Ltd.

Cochineal
Canaries, 2 bgs. Swanson & Co.

Cutch
Rangoon, 1,830 bxs. A. Hoare, W.

" 500 Hoare, W.

Extracts
Belgium, 630 bgs. A. J.

Austria, 400 brls. A. J.

Denmark, 36 cs. Bailey & Co.

France, 20 pks. L.

Holland, 1 ck. Loder

Fustic
Belgium, 43 c. W.

Gambier
Singapore, 271 bgs. J. S.

" 680 brls.

" 250 Biers

" 299 G.

" 1,287 I.

" 318 S.

" 231 Hors

Indigo
E. Indies, 172 chts. L. & I.

Belgium, 5 cs. S.

E. Indies, 6 Croys

" 50 W.

" 5 E. B.

" 44 Wall

" 73 Pass

" 19 J. Ken

" 12 Dig

" 20 P.

" 80 A. B. C.

" 29 E.

Logwood
Hayti, 23 t.

Madder
Holland, 2 cks. C.

Myrabolams E. Indies, 375 bgs. Dalton & Young 150 J. Graves	Potassium Carbonate — France, 85 c. Peiri Brs. Germany, 1,044 Blagden, Waugh & Co	Ammonia — New York, 50 cyldrs.	Rosin — Boston, 200 brls. Savannah, 5,480
Shumac Italy, 200 bgs. H. Johnson & Sons 100 A. E. Pigott 450 Bailey & Leatham 66 Nich's Wvs. Ltd. 300 Bevington & Sons	Potassium Chloride — Germany, 250 bgs. F. W. Berk & Co. Potassium Oxalate — Holland, 20 cks. R. W. Greeff & Co.	Antimony — Leghorn, 60 cs. Asbestos — Genoa, 13 bls. Sarytes — Rotterdam, 44 cks. Antwerp, 17	Rosin Oil — Savannah, 2 brls. Saltpetre — Calcutta, 498 bgs. Ralli Brs. 1,352 Hamburg, 8 cks. 10 kgs.
Valonia A. Turkey, 182 t. J. Graves 5 W. H. Mitchell 63 Adam Brs.	Pyrites — Spain, 2,040 t. C. Tennant, Sons, & Co.	Bone Black — Philadelphia, 20 brls. Soracic Acid — Leghorn, 80 cks.	So-p — N. Orleans, 2,663 brls. New York, 2 cs. Boston, 5 Evans, Sons & Co.
Farina — Belgium, 50 bgs. T. H. Lee 30 Dunlop Brs. & Co. Holland, 30 J. Knill & Co.	Quicksilver — Italy, 100 flks. H. Bath & Son 500 L. & I. D. Jt. Co.	Borate — Galveston, 4,043 sks. Borax — Galveston, 3,133 sks.	Soapstone — Bordeaux, 200 bgs. G. G. Blackwell, Sons & Co.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Rosin Oil — France, 60 brls. Barrett, Tagant, & Co. 3,174 Prod. Brokers' Co.	Castor Oil — New York, 500 cs. Genoa, 5 Leghorn, 10	Starch — Philadelphia, 110 brls. New York, 1,700 bgs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Saltpetre — Germany, 256 pks. P. Hecker & Co. 70 cks. S. E. Railway Co.	Chemicals (otherwise undescribed) Hamburg, 5 cs.	Stearine — New York, 75 tcs. Cowp. Boston, 50 W'sale Society, Ltd. Baltimore, 25 Antwerp, 7 bgs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Soda — Holland, 100 c. J. Owen	Colours — Paris, 3 cs. Rotterdam, 2 cks.	Sulphur — Catania, 40 bgs. 14 cks. 134 brls
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Starch — Belgium, 200 cs. T. H. Lee U. States, 125 brls. Beck & Pollitzer 1,700 cs. Horne & Co. Belgium, 200 Leach & Co. 90 pks. F. Claydon & Co. Holland, 883 cs. T. H. Lee France, 8 cks. Beck & Pollitzer U. States, 99 bgs. R. G. Hall & Co. Holland, 2,044 cs. Little & Johnston	Cottonseed Oil — N. Orleans, 50 brls. New York, 10 M. Bell Galveston (Texas), 350	Tallow — New York, 304 brls. Colby & Co. M. Video, 200 pps. Montreal, 140 tcs. New York, 50 bds.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Stearine — Denmark, 12 cks. Tegner, Price, & Co. Holland, 17 114 bls. J. Owen	Cream of Tartar — Bordeaux, 25 cks.	Tartar — Rotterdam, 10 cks.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Sulphur — Italy, 10 t. G. Boor & Co. 20 F. C. Devon & Co.	Dyestuffs — Argols Oporto, 23 cks. Divi Divi Hamburg, 596 sks. Havre, 125 Shumac Palermo, 1,130 bgs 315 bls. 2 brls. Oporto, 50 Valonia Patras, 151 bgs. A. M. Calliafu Smyrna, 105 t. G. Essayan & Co. Syr, 183 1/4 4,611 Constantinople, 410 L. J. Vuzunaras Tchaous-soglou Brs.	Treacle — Philadelphia, 50 brls.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Tar — Germany, 3 brls. L. & I. D. Jt. Co.	Farina — Fiume, 100 bgs. Haefner, Hilpert & Co. Hav. e, 100 3,500 sks	White Lead — Antwerp, 24 cks. J. T. Fletcher & Co.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Tartaric Acid — Holland, 42 pks. Kirkpatrick & Co. 11 F. C. Devon & Co.	French Chalk — Leghorn, 3 cs.	Wood Pulp — Boston, 246 bls.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Ultramarine — Germany, 4 cks. J. Kitchin, Ltd. 4 Steinhoff, Sons, & Co.	Gelatine — B. Ayres, 84 cs. H. Brown Rouen, 10 Co-op. W'sale Society, Ltd.	Zinc Ashes — Antwerp, 6 cks.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Varnish — U. States, 32 pks. Allan Brs. & Co. Germany, 1 L. & I. D. Jt. Co. U. States, 5 W. A. Little Holland, 5 Staveley & Starr	Glucose — New York, 200 brls. T. M. Duche & Son 300	Zinc Oxide — Antwerp, 63 brls.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	White Lead — Holland, 20 cks. A. Lumbeck & Co. Belgium, 20 Perkins & Homer 19 J. L. Lyon & Co. 30 T. & W. Farmiloe 20 brls. Leach & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Zinc White — Rotterdam, 100 cks.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	MANCHESTER. <i>Week ending February 6th.</i>
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Acetate of Lime — New York, 606 bgs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Acetic Acid — Rotterdam, 15 blns.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Alizarine — Rotterdam, 11 cks. 1 cs. 41 brls.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Alum na Sulphate — Rotterdam, 21 cks.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Ammonia — Rotterdam, 20 cs. 15 cyldrs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Aniline Colours — Rotterdam, 21 brls. 11 bxs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Anthracene — Boulogne, 6 cks.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Betanaphthal — Rotterdam, 1 bx.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Colours — Rotterdam, 164 brls. 27 bxs. 14 cs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Cream of Tartar — Rotterdam, 4 cks.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Glucose — Rotterdam, 10 cks.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Glue — Treport, 1 ck. 80 bls. Gothenburg, 20 cs. Antwerp, 5 pks. 14 Rotterdam, 130 bgs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Limestone — Antwerp, 1 crt. 6 cs.
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Logwood — Laguna De Terminos, 400 t. D. Midgeley & Sons
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	Paraffin Scale — New York, 996 brls. Anglo American Oil
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J. Knill & Co. France, 500 500 L. Norman & Co., Ltd. U. States, 200 1,140 J. Keiller & Son France, 250 250 Trier, Meyer, & Co. U. States, 100 570 W. H. Sampson	Wood Pulp — France, 58 bls. T. Helderson Germany, 66 Norway, 250 pks. E. J. & W. Goldsmith 250 Christophersen, Andrews & Co.	Glucose — New York, 200 brls. T. M. Duche & Son 300	
Glucose — U. States, 500 pks. 500 c. G. Thompson & Co. Germany, 28 230 J			

Paraffin Wax—			
Philadelphia,	85 brls.		
Potassium Sulphate—			
Rotterdam,	100 cks.		
Rosin—			
Br'nswick, G.,	5,081 brls.		
Sodium Nitrite—			
Rotterdam,	8 cks.		
Sodium Prussiate—			
Rotterdam,	16 cks.		
Starch—			
New York,	400 bgs.	T. M. Duche & Sons	
"	200	448 sks.	
Antwerp,		240 cs.	
Rotterdam,		180	
Stearine—			
New York,	100 tcs.	Co-op. W'sale Society	
Rotterdam,	14 bgs.		
Tartaric Acid—			
Rotterdam,	2 cks.	2 kgs.	
Ultramarine—			
Rotterdam,	4 cks.	1 cs.	
Wood Pulp—			
Gothenburg,	3,585 bls.	Christie & Greenhalgh	
New York,	201 bdls.		
Zinc Oxide—			
Rotterdam,	25 cks.	85 brls.	

HULL.

Week ending February 6th.

Acids—			
Hamburg,	1 cs.	Wilson,	
"	1 ck.	Sons, & Co.,	Ld.
Antimony—			
Leghorn,	40 cks.	Wilson,	
"		Sons, & Co.,	Ld.
Barytes—			
Antwerp,	140 cks.	Blundell,	
"	10 bgs.	Spence, & Co.	
Rotterdam,	15 cks.	Bailey & Leatham	
Antwerp,	100 bgs.	Hutchinson & Son	
"		Wilson,	
"		Sons, & Co.,	Ld.
Castor Oil—			
Leghorn,	10 cs.	Wilson,	
"		Sons, & Co.,	Ld.
Chemicals (otherwise undescribed)			
Hamburg,	3 cks.	Wilson,	
Antwerp,	58 pks.	Sons, & Co.,	Ld.
Cod Oil—			
Bergen,	32 brls.	Wilson,	
"		Sons, & Co.,	Ld.
Colours—			
Antwerp,	1 cs.	Hall's Ropery Co.	
Stettin,	14 cks.	Wilson,	
Rotterdam,	4 brls.	Sons, & Co.,	Ld.
"	72 pks.	Hutchinson & Son	
"	23	11	
"	4 bxs.	W. & C. L.	
Hamburg,	5 cks.	Ringrose	
"		Wilson,	
"		Sons, & Co.,	Ld.
Cryolite—			
Antwerp,	5	"	
Cryolite—			
Copenhagen,	3 cks.	Wilson,	
"		Sons, & Co.,	Ld.
Dyestuffs—			
Alizarine	85 pks.	W. & C. L.	
Rotterdam,		Ringrose	
Argols			
Bordeaux,	22 bgs.	Rawson & Robinson	
"	35 cks.	Wilson,	
"		Sons, & Co.,	Ld.
Cochineal			
Hamburg,	3 bgs.	Wilson,	
"	2 cs.	Sons, & Co.,	Ld.
Indigo			
Hamburg,	5 cs.	Wilson,	
"		Sons, & Co.,	Ld.
Shumac			
Palermo,	200 bgs.		
Yalonia			
Smyrna,	5,945 G.		
Farina—			
Stettin,	350 bgs.	Wilson,	
"		Sons, & Co.,	Ld.
Glucose—			
New York,	200 brls.		

Glue—			
Bergen,	22 brls.	Wilson,	
"		Sons, & Co.,	Ld.
Naphthaline—			
Stettin,	110 cks.		
Nickel Salts—			
Rotterdam,	1 ck.	W. & C. L.	
"	2	Ringrose	
"		Hutchinson & Son	
Phosphate—			
Ghent,	90 t.	Wilson,	
"		Sons, & Co.,	Ld.
Plumbago—			
Genoa,	23 brls.		
Potash—			
Dunkirk,	25 dms.	Wilson,	
"		Sons, & Co.,	Ld.
Pumice Stone—			
Leghorn,	6 cs.	Wilson,	
"	8 pks.	Sons, & Co.,	Ld.
Messina,	131	"	
Rosin—			
Charleston,	3,292 brls.		
Br'nswick, G.,	2,631		
Saltpetre—			
Hamburg,	15 bgs.	Wilson,	
"	15 cks.	Sons, & Co.,	Ld.
Soap—			
Marseilles,	3 cs.	Wilson,	
"		Sons, & Co.,	Ld.
Starch—			
Ghent,	76 cs.	Wilson,	
"		Sons, & Co.,	Ld.
Bremen,	2,956	Veltmann & Co.	
Stearine—			
Antwerp,	88 bgs.	Bailey & Leatham	
"	30	Wilson,	
"		Sons, & Co.,	Ld.
Sulphur—			
Catania,	50 pks.	Wilson,	
"	1,565	Sons, & Co.,	Ld.
"	25 t.		
Tar—			
Dunkirk,	12 cs.	Wilson,	
"	10 cks.	Sons, & Co.,	Ld.
Tartar—			
Marseilles,	10 cks.		
Tartar—			
Naples,	2 cks.		
Tartaric Acid—			
Rotterdam,	4 cks.	Hutchinson & Son	
Treacle—			
New York,	50 brls.	Wilson,	
"		Sons, & Co.,	Ld.
Turpentine—			
Savannah,	2,912 brls.		
Br'nswick, G.,	1,500		
White Lead—			
Antwerp,	77 cks.	Bailey & Leatham	
Wood Pulp—			
Gothenburg,	663 pks.	Wilson,	
"	1,160 bls.	Sons, & Co.,	Ld.
Christiania,	2,816 pks.	1 bx.	
Drontheim,	600 bls.		
New York,	370 pks.		
Hamburg,	720 bls.		
Hango,	772	J. Good & Sons	
Zinc Oxide—			
Antwerp,	50 cks.	Bailey & Leatham	
Zinc White—			
Rotterdam,	25 cks.	Hutchinson & Son	

GLASGOW.

Week ending February 11th.

Arachide Oil—			
Rotterdam,	4 cks.		
Asbestos—			
Genoa,	13 cs.	26 bls.	
Barium Sulphate—			
Antwerp,	500 bgs.		
Chemicals (otherwise undes.)—			
Rotterdam,	2 cs.	J. Rankine & Son	
Hamburg,	6 cks.		
Colours—			
Antwerp,	2 cks.		
Rotterdam,		208 pks.	J. Rankine & Son
"	3		
Hamburg,	30	1 cs.	

Dyestuffs—			
Alizarine	139 brls.	1 bx.	
Rotterdam,			
Aniline	31 brls.	5 bxs.	
Rotterdam,			
Madder	13 cks.		
Rotterdam,			
Shumac	600 bgs.	50 bls.	
Palermo,			
Farina—			
Hamburg,	67 bgs.		
Glucose—			
New York,	350 brls.		
Gypsum—			
Rouen,	120 bgs.		
Infusorial Earth—			
Rotterdam,	66 bgs.	J. Rankine & Son	
Manganese—			
New York,	33 cks.		
Manure—			
Antwerp,	306 bgs.		
Pitch—			
Amsterdam,	13 cks.	J. Rankine & Son	
Potash—			
Hamburg,	80 dms.		
Potash Salts			
Dunkerque,	40 cks.		
Pumice Stone—			
Messina,	8 bgs.		
Pyrites—			
Huelva,	1,695 t.		
"	1,753		
"	1,556	Rio Tinto Co.	
"		Tharsis Co.	
Salt—			
Hamburg,	1 cs.		
Saltpetre—			
Hamburg,	1 ck.	30 kgs.	
Sodium Chlorate—			
Rouen,	8 cks.		
Starch—			
Portland, M.,	100 bgs.		
Antwerp,	40 cs.		
New York,	1,000 bxs.		
Stearine—			
Amsterdam,	61 bgs.	J. Rankine & Son	
Rotterdam,	17	"	
Sulphur—			
Girgenti,	800 t.	Thos. Lawrie	
Talc—			
Genoa,	100 bgs.		
Tallow—			
New York,	50 tcs.		
Sydney,	60 cks.		
Tar Oil—			
Hamburg,	10 cks.	11 brls.	
Tartar			
Bordeaux,	7 cs.		
Treacle—			
Boston,	50 brls.	Waddell & Bryson	
New York,	600	"	
Yarnish—			
New York,	175 brls.		
Antwerp,	1 ck.	1 tin	
White Lead—			
Rotterdam,	40 cks.	J. Rankine & Son	
Genoa,	67		
Wood Pulp—			
Drontheim,	80 bls.		
Christiania,	901	3 cs.	
Zinc Oxide—			
New York,	100 brls.		
Antwerp,	15 cks.		
Zinc Sulphate—			
Rotterdam,	5 brls.	J. Rankine & Son	

TYNE.

Week ending February 6th.

Arsenic—			
Hamburg,	2 kgs.	Tyne S. S. Co.	
Asbestos—			
Hamburg,	1 crt.	Tyne S. S. Co.	
Barium Chlorate—			
Rotterdam,	350 bgs.	Tyne S. S. Co.	

Barytes—			
Rotterdam,	134 bgs.	Tyne S. S. Co.	
Antwerp,	130	25 brls.	
Cod Oil—			
Drontheim,	4 brls.		
Colours—			
Hamburg,	1 cs.	Tyne S. S. Co.	
Antwerp,	4 cks.	"	
Farina—			
Antwerp,	5 bgs.	Tyne S. S. Co.	
Limestone—			
Antwerp,	3 crts.	Tyne S. S. Co.	
Pitch—			
Rotterdam,	14 cks.	Tyne S. S. Co.	
Hamburg,	15	"	
Pyrites—			
Huelva,	2,190 t.	Tharsis Sulphur & Copper Co.	
Starch—			
Rotterdam,	244 cs.	Tyne S. S. Co.	
Stearine—			
Antwerp,	6 bgs.	Tyne S. S. Co.	
Tartaric Acid—			
Rotterdam,	10 cks.	Tyne S. S. Co.	
Ultramarine—			
Hamburg,	16 bgs.	Tyne S. S. Co.	
White Lead—			
Antwerp,	32 brls.	Tyne S. S. Co.	
Wood Pulp—			
Drontheim,	120 bls.		
Zinc Oxide—			
Antwerp,	25 brls.	Tyne S. S. Co.	

GOOLE.

Week ending February 3rd.

Alizarine—			
Rotterdam,	13 brls.		
Alkali—			
Calais,	12 cks.		
Antimony—			
Boulogne,	7 cks.		
Caoutchouc—			
Boulogne,	1 bl.		
Chemicals (otherwise undescribed)			
Hamburg,	6 cks.	1 cs.	
Colours—			
Hamburg,	15 cks.	3 cs.	
Amsterdam,	4		
Creosote Salts—			
Hamburg,	6 cks.		
Dyestuffs (otherwise undescribed)			
Rotterdam,	252 cks.	49 cs.	
Boulogne,	53	1	8 pks.</

50 bgs.	Antwerp, 2 cs.	Rotterdam, 102 bgs. 2 cs.	Pitch—
134 bgs.	Chemicals (otherwise undescribed)	Dyestuffs (otherwise undescribed)	Hamburg, 1 ck.
2 pks.	Hamburg, 4 pks.	Antwerp, 1 ck.	Starch—
	Antwerp, 110 cks.	Glue—	Antwerp, 1 cs.
	Hamburg, 9	Dieppe, 8 cks.	

EXPORTS OF CHEMICAL PRODUCTS

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.	Hamburg, 2	61	Jersey, 6	29	Sulphur—	
ending February 10th.	Sydney, 18	18	Paris, 17 3	93	Mossel Bay, 22 L. 6 c.	£243
acid—	Bombay, 3	18	Jamaica, 27 2	618	Natal, 70 cs.	20
6 cs.	Coal Products—		Dieppe, 10	65	Algoa Bay, 450	15 13 100 kgs. 330
12	Aniline Colours	£6	Demerara, 60	630	Trinidad, 1	17
20 cs.	Melbourne, 2 cs.	£350	Guadeloupe, 7 14	210	Sulphuric Acid—	
15 brls.	Rotterdam, 140 cks.	£546	Myrbane—		Colombo, 10 dms.	£15
3 L. 4 c.	Benzol	300	Brussels, 20 dms.	£35	Cape Town, 1 L. 10 c. 40 cs.	41
4 cks.	Treport, 96 cks.	£181	Wellington, 10 5 cs.	17	Superphosphates—	
5 cs.	Rotterdam, 48	£227	Hamburg, 10	15	Bordeaux, 20 L. 1 c.	£60
(Liquid)—	Colours	20	Reval, 1 ck	15	Mauritius, 125 18	422
um Carbonate	Boston, 13 cks.	£544	Nitric Acid—		Cherbourg, 260	780
3	Groosote	£670	Melbourne, 5 cs.	£10	Tartaric Acid—	
um Chloride—	Huelva, 3,612 brls.	34	Jersey, 15 carboys	30	Hamburg, 10 c.	£60
um Sulphate—	Rotterdam, 25 cks.	£670	Oxalic Acid—		Napier, 2	12
102 L.	Groosote Salts	£670	Sydney, 10 c.	£34	Delagoa Bay, 2	11
150	Naphtha	£670	Amsterdam, 2 cs.	£79	Melbourne, 6	652
50	Treport, 15 brls.	34	Phosphate—		Wellington, 3	27
213 19 c.	Melbourne, 70 dms.	£135	Grenada, 10 t.	£28	LIVERPOOL.	
1,761 12	Naphthaline	£135	Potash Crystals—		Week ending February 10th.	
150	Antwerp, 129 cks.	£135	Oporto, 6 cks.	£45	Alum—	
us Ammonia—	Algoa Bay, 10	6	Potash Salts—		Havana, 11 t. 19 c.	£45
20 cydls.	Havre, 2	22	Auckland, 6 t. 9 c.	£420	Salora, 19	5
2 brls. 8 c.	Le Treport, 10 90 bgs.	71	Potassium Bicarbonate—		San Francisco, 23	115
g Powder—	Pitch	£653	Philadelph., 2 t. 6 c.	£61	Aluminoferrie—	
2 t. 8 c.	Huelva, 363 t.	8	Yokohama, 1	28	Rosario, 5 t. 2 c.	£16
3	Brisbane, 2 cks.	330	Potassium Bichromate—		Ammonia—	
4 14	Dunkirk, 280	1,250	Piraeus, 1 t. 4 c.	£56	B. Ayres, 1 t. 6 c. 2 q.	£124
13 kgs.	Antwerp, 840	1,500	Potassium Chlorate—		Ammonia (Liquid)—	
10 cks.	Cette, 1,090	5	Adelaide, 5 kgs.	£10	Madeira, 1 c. 1 q.	£5
2 t. 4 c.	New York, 100	750	Potassium Cyanide—		Cairo, 1 c. 1 q.	16
Acid—	Prussian Blue	£18	Townsville, 18 t. 16 c.	£1,540	Ammonium Carbonate—	
50 dms.	Tar	£7	Potassium Prussiate—		Valparaiso, 12 c.	£10
1 cs.	Hong Kong, 10 brls.	29	Philadelph., 63 cks.	£836	Marseilles, 10	14
Acid Gas—	Singapore, 20 12 cks.	29	Boston, 13	88	Leghorn, 5	7
32 tubes	Algoa Bay, 20 50 dms.	10	Gothenburg, 2 t. 10 c.	152	Bremen, 10 1 q.	15
4 cs.	Antwerp, 20	8	Antwerp, 4	45	Hamburg, 6	9
Soda—	Natal, 150	8	Rotterdam, 17	218	Copenhagen, 1 t. 2	21
12 c.	Toluol	£90	Salicylic Acid—		Paris, 1 12	54
15 t. 12	Boulogne, 25 cks.	£90	New York, 1 cs.	£20	Ammonium Chloride—	
3 9	Copper Sulphate—	£193	Saltpetre—		Salonica, 1 t. 10 c.	£48
2 13	Leghorn, 10 t.	194	Townsville, 10 c.	£12	Alexandria, 4	132
3 13	Batoum, 10	13	Oporto, 5 t. 11	110	Melbourne, 1	2
6 3	Corfu, 16 c.	13	Natal, 1	21	Fiume, 1	7
3 3	Genoa, 43 13	774	Vigo, 7 8	150	Romby, 1 16	53
83 cks.	Paris, 149 8	2,837	Algoa Bay, 2	41	Barcelona, 1 8	27
10 brls.	Odessa, 20 2	384	Amsterdam, 10	16	Ammonium Sulphate—	
12 13	Naples, 74	1,437	Sheep Dip—		Gd. Canary, 5 t. 5 c.	£58
3 cs.	Treport, 10	103	Townsville, 12 3 dms.	£30	San Francisco, 51 4	2 q. 385
12 11	Melbourne, 5	85	Pt. Elizabeth, 19 t. 4 c.	350	New York, 50 12	385
100	Marseilles, 35 7	660	Wellington, 19 t. 4 c.	60	St. John, N.B., 5	1
3 19	Copperas	£19	Boston, 1 2	10	Cullera, 101 9	2
9 29	Salonica, 60 brls.	£19	Hobart, 20 kgs.	20	Castellon, 75 16	525
10 13	Gibraltar, 20 cks.	£6	Silver Nitrate—		Dunkirk, 20 8	165
8 5 30	Cream of Tartar—	£10	Marseilles, 1 cs.	£54	Constantinople, 4 19 3	55
58 82	Cape Town, 2 c.	£10	Soda—		Santos, 2 1	18
3 22	Sydney, 3 t.	247	Calcutta, 2 c.	£5	Messina, 2 1	10
5 38	Melbourne, 1 5	97	Mauritius, 1 t. 3	5	Huelva, 2 1	17
5 38	Napier, 3	12	Rotterdam, 5	30	Nantes, 3 12	29
31 dms. 285	Adelaide, 10	41	Algoa Bay, 2 5	5	Boston, 10	65
19 cs. 99	Wellington, 1 13	135	Natal, 14	29	Canaria, 30 9	343
65	Auckland, 10	43	Soda Ash—		Genoa, 56 9	430
5 30	Algoa Bay, 1 cs.	9	Auckland, 20 t. 5 c.	£90	Palermo, 10 11	2
5 30	Fremantle, 1 10	138	Soda Crystals—		Las Palmas, 60 10	480
5 30	Disinfectants—		Algoa Bay, 2 cks.	£5	Sourabaya, 250	2,125
5 30	New York, 30 brls.	£47	Melbourne, 10 t.	£138	Valencia, 151 17	1,235
5 30	Melbourne, 20 cks.	62	Sodium Acetate—		Leghorn, 20 14	2
5 30	Bombay, 61 885 dms.	307	Sodium Bicarbonate—		Bleaching Powder—	
5 30	Calcutta, 5 pks.	13	Townsville, 16 c.	£10	Baltimore, 82 cks.	
5 30	Natal, 274	339	Pt. Elizabeth, 8	6	Bombay, 70 cs.	
5 30	Sydney, 6	79	Algoa Bay, 10	10	Boston, 265	5
5 30	Singapore, 25	23	Mossel Bay, 12	9	Calcutta, 16	
5 30	Guanine	£109	Delagoa Bay, 2	11	Naples, 40	
5 30	Mauritius, 25 t.	57	Sodium Carbonate—		New York, 69	
5 30	St. Michael's, 6 9 c.	57	Fremantle, 10 c.	£7	Philadelphia, 5 brls.	
5 30	Lime—		Sodium Hyposulphite—		St. John's, N.B., 5 brls.	
5 30	Cape Town, 5 t.	£18	Shanghai, 3 t. 18 c.	£16	Boracic Acid—	
5 30	Jamaica, 18	64	Sodium Sulphate—		Valparaiso, 6 c.	£69
5 30	St. Kitts, 5 4 c.	30	Ghent, 40 t.	£60	Antwerp, 12	18
5 30	Trinidad, 85 12	220	Strontium Nitrate—		New York, 10 t.	300
5 30	Manure—		Calcutta, 7 kgs.	£9		
5 30	Bordeaux, 30 t.	£85				
5 30	Treguier, 108 3 c.	290				
5 30	Guernsey, 5	17				
5 30	St. Michael's, 6 9	30				

Borax—

Tampico	9 c.	2 q.	£10
Sydney	2 L.	5	47
Rosario	1	10	36
Valparaiso	6		6
Antwerp	31	8	628
Barcelona	0	9	129
Constantinople		3	5
Copenhagen	2	5	42
Ancona	1		20
B. Ayres	3	17	77
Port Natal		5	5
Venice	15		15
Tahiti	8		99

Calcium Chloride—

Napier, N.Z.	5 t.	2 c.	£12
Baltimore	15	12	32
Rangoon	7	19	18
Calcutta	2	1	5

Carbolic Acid—

Hamburg	5 L.		£325
Rotterdam	10		198
Calcutta	2	5	73
Baltimore	9	19	194
Bombay	1	7	17
Shanghai	15		49

Caustic Soda—

Alexandria	85 dms.		
Baltimore	200		
Barcelona	100		
Bilbao	75		
Boston	250	100 brls.	
B. Ayres	100	100 kgs.	
Eten	30		
Genoa	150		
Havana	10		
Kingston	10		
La Guayra	20		
Libau	18		
Marseilles	100		
Naples	61		
New York	285		
Palermo	10		
Pernambuco	30		
Philadelphia	125		
Pt. Elizabeth		43 c.	
Puerto Cabello	16		
Rangoon	20		
St. John, N.B.	50		
San Francisco	250		
Savannah	24		
Seville	160	40	
Tarragona	30		
Vera Cruz	318		

Chemicals (otherwise undesignated)

Boston	12 t.	3 c.	£710
Naples		19	2 q.
Piræus	14		23
Yokohama	8		225
New York	20	15	241
Venice	1	10	41
Sydney		15	22
Oporto		3	5

China Clay—

Bilbao	50 bgs.		
Bombay	21 cks.		
Boston	1,301		
Calcutta	1,000		
Naples	40		
New York	200		
Philadelphia	193		
Portland, Me.	1,109		
Rio de Janeiro	16		
Trieste	20		

Coal Products—

Aniline Co. ours			
Yokohama	12 c.		
Aniline Oil			
New York	4 dms.		
Aniline Salts			
Boston	34 c.		
Philadelphia	5		
Smyrna	10 cks.		
Pitch			
Galatz	40 brls.		
Tar			
Philadelphia	225 brls.		
Vancouver	10		

Copper Sulphate—

Fiume	50 t.		£131
Trinidad	4	1 c.	2 q.
Oporto	20		305
Libon	5	3	64
Porto Alegre		4	6
Ghent	9	16	170
Singapore	3		61
Malaga		11	14
Galatz	1		16
Oran	4	18	83
Bona	4	18	84
Algiers	37		625
Venezia	18	1	275
Naples	118	6	3,009
Venice	300	8	4,006
Bordeaux	528	6	9,364

Cette	84	3	1,520
Paris	61	10	1,018
Trieste	62	6	1,082
Palermo	30	16	1
Leghorn	135	9	2,465
Genoa	335		5,864
Rouen	25		460
Nantes	82	14	1,431

Copperas—

Caldera	20 t.	10 c.	1 q.
---------	-------	-------	------

Disinfectants—

Calcutta	12 cks.	3 dms.	1 cs.
Newcastle, N.S.W.		9 c.	2 q.
Bombay	7 t.	16	91
Durban	20 sks.		20

Dried Blood—

Marseilles	30 t.	3 c.	1 q.
Gd. Canary	5		27

Guano—

Malaga	10 t.		£80
--------	-------	--	-----

Iron Oxide—

Boston	5 t.	13 c.	£18
--------	------	-------	-----

Magnesia—

Alicante	25 cs.		
Vera Cruz	4		

Magnesium Chloride—

Rouen	5 t.	3 c.	£15
-------	------	------	-----

Magnesium Sulphate—

Rio de Janeiro	100 bgs.		
----------------	----------	--	--

Manure—

Valencia	1 t.		£8
Morlaix	71	2 c.	2 q.
Landerneau	50	4	1
Cherbourg	15	3	2
Santa Cruz	5		30
Gd. Canary	8	12	50

Oxalic Acid—

Vera Cruz		5 c.	1 q.
Barcelona	1 t.	1	1
Danzig	4	16	2
Newcastle, NSW	2	4	1

Paint—

Accra		240 kgs.	
Alexandria			18 dms.
Beira	3 cs.		
Belize		75	
Beyrout	5 cks.		
Callao	110		
Cienfuegos	4		
Colon	5	10	
Demerara	5	100	
Hamburg	300 bgs.	1	1
Havana	6		
Hong Kong	1 cs.		
Lagos		130	
Lisbon	12		14
Manaos	9		45
M. Video		60	
Nova Redonda			14 cs.
Old Calabar			
Opobo	3		
Piræus	2 brls.	5	
Port Natal	34		
Porto Alegre	7		
Warri	5		
Vera Cruz		2	

Painters' Colours—

Alexandria	10 dms.		
Algoa Bay	11 cs.		
Antwerp	17 cks.		
Nova Redonda	60 kgs.		

Paraffin Wax—

Paris	10 cs.		
Pimental	8 bgs.		
Piræus	10		
Smyrna	10		
Syria	40		

Phosphorus—

Havana	5 c.	£58
Shanghai	14	1.0
Kobe	5	65
Hong Kong	2	77
Hiogo	4 t.	10

Picric Acid—

New York	1 t.	6 c.	£05
----------	------	------	-----

Potassium Bichromate—

Seville	2 t.	9 c.	£45
Copenhagen	17		32

Potassium Chlorate—

Alexandria	10 c.	£20
Havana	1 t.	40
Kingston Jam.	1	75
Stettin	5	168
Libau	10	364
Copenhagen	8	10
Rio de Janeiro	1	40
Rotterdam	1	12
Philadelphia	0	31
New York	7	10
Boston	0	6
Reval	43	1,546

Hamburg	1	4	48
Hiogo	20		669

Potassium Oxalate—

Barcelona	6 c.	£13
-----------	------	-----

Sal Acetosa—

Barcelona	4 c.	£9
-----------	------	----

Salt—

Accra	10 t.		
Baltimore	99	18 c.	
Belize	16	14	
Bombay	30		3 brls.
Bordeaux			
Boston	290		
B. Ayres	15	9 c.	
Calcutta	565		
C. C. Castle	12	10	
Conakry	50	8	
Coquimbo	6		
Demerara	44	13	
Hamburg	1	12	
Hiogo	20		
Iquitos	18	11	
Kotonou	75		
Lagos	31	5	
Melbourne	25		
Newcastle	205		
N. Orleans	550	13	650 sks.
New York	100		
Old Calabar	1,750 bgs.		
Opobo	7,755		1,400
Portland, Me.			
Pt. Royal	2,108 t.		
Rio de Janeiro		100 cs.	
St. John, N.B.	183		1,900
Savannah	700		
Sherbro	20		1,000 bgs.
Sinoe	9		200
Sapeli	10		
Sierra Leone	150		
Sydney	25	100	
Townsville	830		
Trinidad			1,100 sks.
Warri	10		350
Yokohama	53		

Salt Cake—

New York	3 t.	18 c.	£70
Baltimore	70	12	121

Saltpetre—

Halifax		19 c.	2 q.
San Francisco	3 t.	2	1
Landerneau	59	12	133
Pernambuco	5	14	120
Naples	50		72

Sheep Dip—

M. Video	1 t.	9 c.	1 q.
----------	------	------	------

Soap—

Accra	200 bgs.		
Alexandria	10	20 dms.	10 cs.
Algoa Bay	550	25 bds.	1
Barbadoes	221		
Batavia	1,000		
Bayin	27		
Bombay			3
Boston			500
Calcutta		250	86
C. C. Castle	360		
Cape Town	836		
Colon	700		
Constantinople			1
Delagoa Bay	75		
E. London	500		
Genoa	210		
Ghent	10		
Gibraltar	15 pks.	3 cks.	32
Halifax	400 bgs.		
Kingston	2,050		1
Lagos	356		
Las Palmas	813		
Macassar	600		
Madras	15		1
Manaos	200		
Menado	2,500		
Montego Bay	90		
Mosel Bay	545		12
N. Orleans	25		
New York	500	12	500
Obobo	500		7 brls.
Para	300		
Penang	67		
Pt. Elizabeth	65		
Portland	24		
Portland, Me.			300
Pram Pram	200		
Rio de Janeiro	10		
St. John, N.B.			200
St. Lucia	75		
Salt Pond			12
Shanghai	2,751		4
Sierra Leone	180		
Singapore	250		50
Surinham	100		
Sydney			3,500
Teneriffe	274		
Tocopilla			6

Valparaiso	100		
Trinidad	1,400		
Vera Cruz			1

Soda—

Para			1 cs.
Tahiti			4 brls.

Soda Alkali—

Callao			35 brls.
Kingston			10
Leghorn			40
Piræus			5
Vera Cruz			50

Soda Ash—

Antwerp	500 bgs.		
Baltimore	1,196		25 cks.
Boston	2,048	13 cks.	182
Bremen	25		
B. Ayres			200 brls.
Callao			119
Copenhagen	168		
Corfu	30		
Gothenburg			20
Hiogo			165
Libau			500
Malta			110
Maranham			80
New York			116 bcs.
Philadelphia			30
Piræus	25		
Puerto Cabello			5
Rio de Janeiro			374
Rotterdam	120		
Samarang			38
Smyrna	100		
Yokohama			122

3 cs.
8 cks.
4
4
5
oxide—
2 t. 15 c. £36

CHESTER.

ending February 10th.

30 brls.
um Carbonate—
10 cks.
um Sulphate—
2,386 bgs.
=,958
Colours—
6 dms.
Acid—
40 cks.
Soda—
25 dms.
ls (otherwise undescribed)
1 ck.
30 20 kgs.

40 brls.
7
1 ck. 7 cs.
75 brls.
ed Oil—
40 brls.
Salts—
18 cks.
16 cks.
40
5 cs.
4 cks.
214

50 brls.
20 cks.
Bicarbonate—
54 cks. 109 kgs.
8 cks.
6
30 dms.
25
1 ck.

4 cks.
214
50 brls.
20 cks.
Bicarbonate—
54 cks. 109 kgs.
8 cks.
6
30 dms.
25
1 ck.

HULL.

ending February 6th

7 cks.
222 cks.
um Sulphate—
500 bgs.
101
2.0
cisco, 309
als (otherwise undescribed)
12 cs.
3 cks 4
6
60
10 262
5
31 59
3

eed Oil—
dam, 953 c.
Pi, 451
aula, 26
anand, 17
agen, 28
100
burg, 100
arg, 308
2,900
dam, 1,089
100

60 brls.

Dyestuffs (otherwise undescribed)
Stettin, 1 ck. 100 66 bgs.

Glue—
Bremen, 1 cs.

Guano—
Dunkirk, 100 sks.

Linseed Oil—
Amsterdam, 104 c.
Antwerp, 21
Christiania, 236
Hamburg, 344

Naphtha—
Antwerp, 7 brls.

Painters' Colours—
Amsterdam, 1 cs.
Antwerp, 280 cks. 39 dms.
Christiania, 2 30
Copenhagen, 9 1 5
1 pk.

Gothenburg, 4
Hango, 12
Hamburg, 1 6
Libau, 2
Rouen, 20
Stettin, 1
San Francisco, 121 10 kgs.

Pitch—
Antwerp, 100 t.

Starch—
Copenhagen, 40 pks

Tallow—
Dunkirk, 72 cks.
Gothenburg, 6
Amsterdam, 1

Tar—
Amsterdam, 11 cks.
Christiania, 10
Dunkirk, 35
Rotterdam, 30
San Francisco, 100 brls.

Varnish—
Antwerp, 1 cs.
Dunkirk, 1 ck.
Gothenburg, 3
Hamburg, 1

GLASGOW.

Week ending February 11th.

Alkali—
Rangoon, 4 t. 18½ c.

Ammonium Sulphate—
Venice, 10 t. 3¼ c.
Ghent, 464 12
Hamburg, 101 5
Mauritius, 102
Nantes, 10 3½

Bleaching Powder—
Melbourne, 9 t. 14¼ c.
Valparaiso, 1 5½

Carbonic Acid Gas—
Rangoon, £123

Caustic Soda—
Melbourne, 5 t. 8¼ c.

Chemicals (otherwise undescribed)
Rangoon, £45 145

Coal Products—
Aniline Dyes

Dunedin, £40
Naphtha

Paris, £98

Pitch
Madras, £13. 109.
Malta, 25. 10.
Trieste, £347

Antwerp, 153 t. 115
Russia, 625
France, £270
Calcutta, £3. 115.
Rangoon, £453

Coal Products (otherwise unres.)
Rotterdam, £137

Cod Oil—
Melbourne, £34

Copper Sulphate—
Bordeaux, 21 t. 7½ c.
Nantes, 1 19¼

Dyestuffs (otherwise undescribed)
Calcutta, £42

Iodine—
Rotterdam, £140

Lead Nitrate—
Canada, £110
New York, 110

Linseed Oil—
Adelaide, 7 t. 5½ c.
Auckland, 3 14¼

Malta, 2 2½
Rangoon, 1 4¼
Egypt, 3 3
Limon, 1 10¼

Logwood—
Dunedin, £105
Boras, 23

Manganese—
Fiume, £95
Rotterdam, 10 t. 7 c.

Manure—
Rouen, 70 t. 6½ c.

Paint—
Adelaide, £25
Calcutta, qty.

Hobart, 38
Singapore, 57
Rangoon, 25
Bergen, 16½ c.
B. Ayres, 47
Coronel, £171. 138.
Limon, £77
Penang, 35

Painters' Colours—
Auckland, qty. £26. 105.

Dunedin, "
Melbourne, "
Singapore, £116
Rangoon, 150

Algoa Bay, "
E. London, 58

Paraffin Wax—
Fiume, £242
Paris, 95

Trieste, 743
Arendal, 30
Bordeaux, 169
Turkey, 250

Potash Salts—
Singapore, £79

Potassium Bichromate—
Melbourne, £72
Rouen, 272

Venice, 213
Antwerp, 187
Ghent, 50
Turkey, 91

Potassium Prussiate—
Lyons, £252
Paris, 252

Rouen, £37. 105.

Soap—
Canada, 2 t. 6½ c.
Amsterdam, 1½

Sodium Bichromate—
Rouen, 19 t. 13¼ c.
Ghent, 5 2¼

Starch—
Rio de Janeiro, £16

Sulphuric Acid—
Rangoon, £10

Tallow—
Turkey, £ t. ¾ c.

Treacle—
Christiania, 2 t. 12½ c.
Bergen, 6 12

Varnish—
Rangoon, £74
E. London, 22

Zinc White—
Dunedin, £47
Coronel, 41

TYNE.

Week ending February 6th.

Alkali—
Antwerp, 13 t. 14 c.
Rotterdam, 7 8
Christiania, 3 19

Antimony—
New York, 45 t.
Rotterdam, 7 10 c.
Barcelona, 1

Arsenic—
Barcelona, 1 t. 18 c.

Bleaching Powder—
New York, 7 t. 8 c.
Antwerp, 72 5
Rotterdam, 20 4
Odense, 1 1
Gothenburg, 9 19
Christiania, 2
Bergen, 10

Caustic Soda—

New York, 117 t. 3 c.
Rotterdam, 10 11
Aarhus, 1 3
Copenhagen, 1 3
Aalborg, 4 7
Barcelona, 33 18
Genoa, 53 16
Gothenburg, 7 10

Gypsum—
New York, 36 t. 18 c.

Litharge—
Antwerp, 2 t. 17 c.
Copenhagen, 1 4

Magnesia—
Hamburg, 1 t. 15 c.
Barcelona, 14 11
Genoa, 3 9

Manure—
Valencia, 84 t.

Paint—
Antwerp, 10 c.
Rotterdam, 16
Hamburg, 1 15

Soda—
Jersey, 2 t. 18 c.
Rotterdam, 20
Aarhus, 30 7
Oporto, 6 9
Christiania, 17 16

Soda Ash—
Königsberg, 21 t. 16 c.
Gothenburg, 10 4
Christiania, 15

Sodium Hyposulphite—
New York, 12 t. 4 c.

Sodium Sulphate—
Christiania, 100 t. 17 c.
Antwerp, 500 2

Superphosphates—
Valencia, 88 t.

Tallow—
Genoa, 14 t. 3 c.

White Lead—
New York, 25 t. 4 c.
Oporto, 2 1

GOOLE.

Week ending February 3rd.

Benzol—
Boulogne, 71 cks.
Rotterdam, 56 17 dms.

Chemicals (otherwise undescribed)
Boulogne, 1 ck.
Harlingen, 1
Rotterdam, 10

Coal Products (otherwise unres.)
Amsterdam, 134 cks.

Antwerp, 1
Boulogne, 22 8 cs.
Hamburg, 75

Colours—
Amsterdam, 1 cs.
Boulogne, 1 tin
Ghent, 5 cks.
Harlingen, 1
Dunkirk, 1
Rotterdam, 3

Dyestuffs (otherwise unres.)
Dunkirk, 5 cks.
Ghent, 37

Manure—
Bruges, 174 bgs.
Dunkirk, 1,030
Ghent, 345

Pitch—
Antwerp, 120 t.
Dunkirk, 731

Soap—
Ghent, 2 cs.

GRIMSBY.

Week ending February 6th.

Coal Products (otherwise unres.)
Antwerp, 191 t.
Dieppe, 98 cks.
Hamburg, 39

Colours—
Dieppe, 2 cks. 3 cs.
Hamburg, 3

PRICES CURRENT.

WEDNESDAY, FEBRUARY 17TH, 1897

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt.	5/10½	& 8/9
Glacial	"	40/-	
Arsenic S.G., 2000°	"	1	4 0
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1¼
Oxalic	nett	0	0 3½
Phosphoric, 1750°	"	0	0 11½
Picric	"	0	0 11
Sulphuric (fuming 50%)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
(free from arsenic, 145°)	"	1	5 0
(free from arsenic, 145°)	"	1	7 6
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2½
Tartaric	"	0	1 1
Arsenic, white powdered	nett per ton	24	10 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	2 6
Aluminoferic	"	2	5 0
Aluminium (Ingot metal 98/99¼%)	nett per cwt.	7	17 6
Ammonia, Anhydrous	per lb.	0	1 3
" 880=28° B.	"	0	0 2¼
" =24° B.	"	0	0 1¼
Carbonate	nett	0	0 3
Muriate	per ton	19	0 0
(sal-ammoniac) 1st & and	per cwt.	35/-	& 33/-
Nitrate	per ton	33	0 0
Phosphate	per lb.	0	0 4¼
Sulphate (grey) London	per ton	7	15 0
(grey) Hull	"	7	15 0
Aniline Oil (pure)	per lb.	0	0 9
Aniline Salt	"	0	0 8¼
Antimony	per ton	31	5 0
(tartar emetic)	per lb.	0	0 9
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	17 6
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	42/6	to 65/-
Bleaching Powder, 35%	nett	6	10 0
Liquor, 7%	"	3	10 0
Bisulphide of Carbon	"	13	10 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	"	15/-	to 30/-
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20%	nett per lb.	0	0 7
Magenta	"	0	3 9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0	0 8
Benzol, 90's	per gallon	0	3 2
50/90	"	0	2 10
Carbolic Acid (crude 60°)	per gallon	0	2 4
(crystallised 40°)	per lb.	0	0 7¼
(liquid 95/97%)	per gallon	0	0 10
Creosote (ordinary)	"	0	0 2
(filtered for Lucigen light)	"	0	0 2½
Crude Naphtha 30% @ 120° C.	"	0	1 1
Grease Oils, 22° Tw.	per ton	2	15 0
Pitch, f.o.b. Liverpool or Garston	"	1	3 0
Solvent Naphtha, 90% at 160°	per gallon	0	1 7
Copper	per ton	51	10 0
Sulphate	"	19	5 0
Oxide (copper scales)	"	44	10 0
Glycerine (crude)	"	40	0 0
(distilled S.G. 1250°)	"	70	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	10 0
Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	13	0 0
Litharge Flake (ex ship)	"	14	15 0
Acetate (white)	"	23	0 0
brown	"	15	10 0
Carbonate (white lead) pure	"	16	15 0
Nitrate	"	19	0 0

Lime, Acetate (brown) (ex ship)	per ton	4	17 6
(grey) (ex ship)	"	8	7 6
Magnesium (ribbon and wire)	per oz.	0	2 3
Chloride (ex ship)	per ton	2	7 6
Carbonate	per cwt.	1	17 6
Calcined Magnesia	per ton	9	0 0
Sulphate (Epsom Salts)	per ton	2	15 0
Manganese, Sulphate	"	16	10 0
Borate	per cwt.	2	10 0
Ore, 70%	per ton	3	10 0
Methylated Spirit, 61° O.P.	per gallon	0	1 8
Naphtha (Wood), Solvent	"	0	2 7
Miscible, 60° O.P.	"	0	2 8
Oils:—			
Cotton-seed	per ton	15	15 0
Linseed	"	16	15 0
Petroleum, American	per gallon	0	0 6¼
Stearine	per ton	19	10 0
Phosphorus (yellow)	per lb.	0	2 3
(red)	"	0	2 8
Potassium (metal)	per oz.	0	1 7
Bichromate	nett per lb.	0	0 4½
Carbonate, 90% (ex ship)	per ton	17	10 0
Chlorate	per lb.	0	0 4
Cyanide, 98%	"	0	0 11½
Hydrate (Caustic Potash) 90%	per ton	24	5 0
(Caustic Potash) 75/80%	"	20	10 0
(Caustic Potash) 70/75%	"	20	0 0
Nitrate (refined)	per cwt.	1	1 6
Pernanganate	per cwt.	3	17 6
Prussiate Yellow	per lb.	0	0 5½
Sulphate, 90% (ex ship)	per ton	9	15 0
Muriate, 80% (do.)	"	8	10 0
Silver (metal)	per oz.	0	2 5½
Sodium (metal)	per lb.	0	2 11
Carb. (refined Soda-ash) 48%	nett per ton	4	15 0
(Caustic Soda-ash) 48%	"	4	5 0
(Carb. Soda-ash) 48%	"	4	0 0
(Alkali) 58%	"	3	10 0
(Soda Crystals)	"	2	0 0
Acetate (ex-ship)	"	13	15 0
Arseniate, 45%	"	15	0 0
Chlorate	per lb.	0	0 5
Borate (Borax)	net, per ton	18	5 0
Bichromate	per lb.	0	0 1¼
Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	"	9	5 0
(74% Caustic Soda)	"	8	2 6
(70% Caustic Soda)	"	7	2 6
(60% Caustic Soda)	"	6	2 6
(pure liquor 90° Tw.)	"	3	15 0
77/78% powdered (99% hydrate)	"	13	10 0
Bicarbonate	"	6	10 0
Hyposulphite	"	5	5 0
Manganate, 25%	"	15	0 0
Nitrate (95%) ex-ship Liverpool	per cwt.	0	8 0
Nitrite, 98%	per ton	30	0 0
Phosphate	"	12	10 0
Silicate (glass)	per ton	4	10 0
(liquid, 100° Tw.)	"	3	10 0
Stannate, 40%	per cwt.	3	2 9
Sulphate (Salt-cake)	per ton	0	19 0
(Glauber's Salts)	"	1	7 6
Sulphide	"	6	15 0
Sulphite	"	5	0 0
Strontium Hydrate, 100%	"	8	0 0
Sulphocyanide Ammonium, 95%	per lb.	0	0 6¼
Barium, 95%	"	0	0 4½
Potassium	"	0	0 6¼
Sulphur (Flowers)	per ton	7	10 0
(Roll Brimstone)	"	6	10 0
Brimstone: Best Quality	"	4	15 0
Superphosphate of Lime (26%)	"	2	15 0
Tallow	"	18	0 0
Tin Crystals	per lb.	0	0 4¼
English Ingots	per ton	65	10 0
Zinc Spelter	"	17	10 0
Chloride (solution, 100° Tw.)	"	5	2 6

THE CHEMICAL TRADE JOURNAL

AND
OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

10.

SATURDAY, FEBRUARY 27, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Form	157
tic Sewage Plant ..	158
ottings	158
ket	158
est Complete Speci-	159
.....	159
the Rand	159
panies	160
rometer	160
.....	161
pondence	161
ical Industry	162
from the Mersey ..	162
oleum from U.S.A.	162
Trade Notes	162
Tar and Ammonia Products	163
Miscellaneous Chemical Market ..	163
The Metal Markets	163
Hull Paint, Oil, and Colour Report ..	163
Tyne Chemical Report	163
Report on Manure Material	166
Liverpool Oil and Colour Market ..	166
West of Scotland Chemicals	166
New Companies	166
Gazette Notices	166
Imports	166
Exports	169
Prices Current	172

Notices.

Communications for the *Chemical Trade Journal* should be sent by Cheques and Post Office Orders made payable to—

BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, of the *Trade Journal*,—payable in advance,—including postage for the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Subscribers are obliged by making their remittances for subscriptions by Post Office Order, crossed and payable to "Davis Bros."

Contributors are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday**.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and send only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, Wants, and Specific Articles for Sale by Private Contract are charged at the following rates:—

Words and under	2s. 6d. per insertion
Each additional 10 words	6s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz:—

Words and under	1s. 6d. per insertion
Each additional 10 words	6s. 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements, are charged at the Tariff rates, which will be forwarded on request.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

PATENT LAW REFORM.

ONCE more the long continued but almost slumbering agitation against our present Patent Laws is showing signs of increased vitality.

The matter is undoubtedly one in which there are many points to be considered ere a change is made, but nevertheless in one or two directions it is clear that a discussion on the soundness of certain sections is imperative. It is most disconcerting when any attempt to open up the question is silenced by the ignorant replies of Government officials who are not in a position to appreciate the importance of the matter they dismiss so summarily. The amount of correspondence that the re-opening of this question has evoked in the daily press shows that the time is about ripe for active measures being again adopted to arrest the attention of the Government.

Numerous points have been raised, and these alone afford ample justification for demanding an inquiry, at which competent judges can hear the testimony of those who have had practical experience of the anomalies of our Patent Laws.

The suggestion of a Royal Commission does not commend itself to those who want to see a betterment this side of their graves, and the Board of Trade seem to have been approached with little result in the past. That is no reason, however, why under due pressure they should not be aroused to something more fruitful and efficacious.

A great point has been made of the need for an "examiner." It has much to support it, and coupled with the fact that a working scheme for using the expert staff of the U.S.A. Patent Office to examine British patents has been described, it should be hard for the responsible officials in Parliament to shirk further inquiry.

It is also absurd that, while making such strenuous efforts to check foreign competition by fostering better education in technological matters, we should allow foreigners to take out, and benefit by patents which have been indisputably declared null and void in other countries.

There are other points, equally ludicrous and unfair, that should be clearly brought out and whenever possible illustrated by examples.

Armed with these, as many members of Parliament as possible should be sufficiently educated in them to enable them to do more than ask a single question and be promptly silenced by the makeshift of one who does not care or wish to be troubled.

Members are the mouth-pieces of their constituents, and if they knew more of the things that closely affect the well-being of those constituents—who form the nation—something tangible would result. Yet how many members know that they missed an opportunity when Mr. Ritchie shut down Captain Philpotts last week by citing section 22 of the Patent Act? Surely if they had known that a licence had actually been refused some one of them would have said so.

It would seem, therefore, that if a special Patents Committee could be formed in connection with the leading Chambers of Commerce, and everyone who has experienced the evils of our system would briefly communicate their points, it would be a comparatively simple matter to put forward a startling collection of flaws, based on fact, not theory. The Chambers could then ensure the attention of Members of the House, and provide them with arms and ammunition.

Concerted action, however, is necessary to achieve anything which is of more than local importance. The primary organization exists in the Chemical Committees attached to many of the Chambers, but more depends on the individual efforts of sufferers. Let them without further delay send a short statement of their grievances to these committees. Do not wait for some one else to set the ball rolling. If they do not wish to disclose their identity, they can communicate through the *Journal* on the usual lines, and their respective complaints will then be summarised and placed collectively before these committees as coming from correspondents of whose *bond-fides* we have received assurance, but whose impersonality will be strictly preserved without exception.

BIRCH'S AUTOMATIC SEWAGE PLANT.

(For illustration see pp. 164 and 165.)

THE days have long gone by when manufacturers could turn any kind of liquid refuse or works effluent into the nearest water course without fear of consequences, and so far as can be seen future legislation is not likely to relieve them of any of their present obligations in this respect.

Our object just now is not to discuss the *pros* and *cons* of these deterrent regulations, but to say a few words about an apparatus which has been specially designed to meet the wants of those who on the one hand are compelled to put their house in order as far as this great "effluent" question is concerned, and on the other are filled with the not unnatural desire to solve the problem as cheaply as possible.

And here, let it be remembered, we do not mean to suggest that cheapness is necessarily the same thing as low initial cost. Before any outlay can be made to harmonize with the idea of cheapness there are considerations of working and maintenance which must be faced, and when we reflect upon the thousands and thousands of pounds that have been frittered away during the last few years, both by public bodies and private firms, upon temporary expedients and senseless makeshifts, we feel inclined to thank ourselves on behalf of the community for drawing attention to a contrivance which appears to be neither the one nor the other.

Mr. Birch's Automatic Sewage Cleansing, Filtering and Sludge Compressing Plant, is capable of dealing with from 7,000 to 15,000 gallons of effluent per hour, according to the class of pollution, and we formed a very high opinion of it as well as of the ingenuity of its inventor, when we saw it in operation at the Birstal Sewage Works a short time ago.

Before reaching the main settling tank (see page 164), the sewage passes through a preliminary settling trough (not shown in illustration), where the heavier solid matters are deposited for periodical removal. In the spout leading from this settling trough to the settling tank, blocks of aluminoferric are placed, so that precipitation can be effected automatically and continuously by the gradual solution. The precipitated matters fall, of course, in the settling tank, the bottom of which is specially constructed to allow of the removal of the sludge with a minimum of disturbance to the contents of the tank. The settled liquor is then passed through the broad endless belt of material which forms the filter, and falling from this in a spray is collected in an underneath trough, whence it rushes over and actuates a water-wheel, which supplies the whole of the power required by the installation. It should be added that the filter cloth is automatically and continuously cleaned, and that the turbid liquor resulting from the process joins the sludge, which is run off periodically from the settling tank, and is continuously elevated from a collecting well to a compressor, which removes so much of the associated water as to leave it semi-solid, and deposit it in this condition in a cart or any other receptacle that may be brought under the delivery chute. This brief sketch will give our readers a general idea of this exceedingly ingenious and efficient apparatus, and manufacturers or others to whom the subject is one of more than passing interest can apply for further information to the maker, Mr. Wm. Birch, of Milton street Ironworks, Lower Broughton, Manchester.

Parliamentary Gossipings.

CARBIDE OF CALCIUM.

IN the House of Commons last week, Mr. Kearley (D) asked the President of the Board of Trade whether he was aware that large quantities of carbide of calcium were being imported from Germany, and whether, having regard to its dangerous nature when exposed to air, any steps were being taken to regulate its importation, if not, whether clause 14 of the Petroleum Act could be made to include it.

Sir M. W. Ridley, who replied said,—The dangers attending the storage and conveyance of carbide of calcium have been the subject of attention of the inspectors of explosives for some months, and he was being taken to apply to this substance by an Order in Council under the provisions of the Petroleum Acts. A memorandum will be issued to local authorities suggesting the precautions to be taken to prevent risk.

PETROLEUM INQUIRY.

On the motion of Sir W. Walrond, the following members appointed a Select Committee to inquire into and report on the sufficiency of the law relating to the keeping, selling, using, conveying of petroleum and other inflammable liquids, and the steps to be adopted for the prevention of accidents with petroleum. Sir T. Carmichael, Mr. J. Collings, Mr. A. Cross, Mr. F. Sir E. Hill, Mr. Wootton Isaacson, Mr. Kenyon, Mr. M. J. Mundella, Mr. Pollock, Mr. H. Reckitt, Mr. C. Rickett, Sir Mr. Tully, and Mr. Ure.

THE ROSIN MARKET.

MESSRS. MOORE AND HOLE, in their report for the month say:—The rosin market has been quiet and unchangeable the past month. A steady but not active demand prevails with moderate sales at quoted prices, and for shipment, they have been very limited. Consumers are amply supplied for time to come, and the recent fall in values in strained and presents no inducements for additional purchases by dealers. Arrivals continue heavy, and stocks of all grades have increased on this side. Recent landings consist mainly of dark and at unremunerative values to importers and dealers. Export continues very slow, and inquiries are of the very smallest and fine sorts are in all respects without change, although for forward delivery of the three finest qualities continue at low prices, and should ere long improve in values. Consumers be far wrong if purchasing for shipment at current quotations have to note the total loss of the barque *Atalanta*, from W. London, with 5,453 barrels strained rosin, since which *Rosa*, from Wilmington to London with 7,913 barrels reported to have put into Barbadoes in a leaky condition. It may have the effect of hardening the spot value of strained demand improve. We quote as follows for all qualities of arrival:—

	On the spot, ex Wharf, less 2½ % discount per cwt.	For Shipw. Mar./May c.i.f. net per cwt.
	s. d.	s. d.
Strained	5s. @ 5 1½	4 6
D grade	5 3	4 7
E "	5 4½	4 8
F "	5 6	4 9
G "	5 7½	4 10
H "	5 9	5 0
I "	6 3	5 3
K "	6 9	5 6
M "	7 0	5 7
N "	7 6	5 9
WG "	7 9	5 11
WW "	8 0	6 3

The stock of all grades American rosins at public wharves inst. showed 8,922 barrels, as against 8,912 barrels same. American holdings are very heavy, especially of fine medium which there is a limited demand. French rosins are a little sale on this market, American being far lower in value.

HOW IT IS DONE.—The Anglo-American Oil Company has contributed £100 towards the building fund of a new Baptist Church, where their sudden-death oil storage works are. They have, in addition, allowed services to be conducted in their offices. Ah, well! "Not everyone that saith Lo but . . ."

The Patent List.

It is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Mr. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

Batteries. C. Payen. 3,346. February 8.
Imposts and Semi-liquids. J. Horne. 3,385. February 9.
or the Conversion of Starch and Gluten. 3,438. February 9.
Alcohol, Raw Beet-Sugar, and Residue, with Carbon Dioxide
digestible Carbon. F. L. Calmont. 3,472. February 9.
for Evaporating, Concentrating, and Cooling. J. B. Alliot.
February 9.
and Evaporating. J. B. Alliot. 3,483. February 9.
Batteries. E. Schattner. 3,488. February 10.
Nitride. W. Mills. 3,493. February 10.
re of Nitrides. W. Mills. 3,500. February 10.
g Paints. J. C. Mewburn. 3,576. February 10.
for Rectifying Sulphuric Acid, etc. J. E. Campbell. 3,592.
y 10.
Alloy. J. Robson and C. A. Joel. 3,609. February 10.
for Heating, Cooling, and Mixing, etc., Chemicals. J.
y. 3,627. February 11.
re Indicating Appliance. H. Ramsden. 3,640. February 11.
Potassium Compounds in Analysis. G. S. Newth. 3,673.
y 11.
lic Acid. J. David. 3,700. February 11.
re of Soap. F. J. Billingham. 3,702. February 11.
lead Sulphide Ores and Obtaining Sulphurous Acid. G. G. M.
ham. 3,793. February 12.
ing Petroleum as a Combustible. J. W. Leadbeater. 3,891.
y 13.
Petroleum. J. W. Leadbeater. 3,892. February 13.
re of Calcium and other Carbides. F. Richard. 3,898. Feb. 13.
Apparatus. F. Candy and the International Water and Sewage
ion Co., Ltd. 3,966. February 13.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal. RIGHTS of publication are RESERVED. This is the earliest abstract of Chemical and allied patents accessible to the

ents in and Relating to the Extracting and Recovering of
m Fish, Fish Refuse, or other Oil Producing Animal or
ble Matters. J. Jack, 95, Buchanan-street, Glasgow, and W. Blake,
Ba-clay, and Co., Victoria Works, Greenock. Eng. Pat. 2,511.
y 4, 1896.

in object is to remove the oil as economically as possible
by means of a rectangular tank divided into compartments,
steam coils, and fitted with a dual system of syphons. By
these the materials are passed from compartment to compart-
ment the oil rising to the top is also removed at different levels.
rial on reaching the last compartment is in the form of
and is passed into a strainer, heated by a steam coil, to
e last traces of oil and dry the product. There are four
he plant and modifications.

ents in and Relating to Apparatus for the Production of
Gas. F. J. Stedman, 147, Strand, London. Eng. Pat. 4,548.
y 29, 1896.

strivance is portable, and suited for lecturers travelling with
apparatus. A series of retorts are connected to a gas main,
in turn by a travelling lamp. The apparatus is carried on
supports fixed to the containing box. On raising the
apparatus room is made for a flexible reservoir. The gas,
d, passes through water tanks or purifiers into this holder,
rs acting as weights to force the gas from the holder to the
constant pressure. There are three figures showing the
on of the apparatus and its general arrangement, the whole of
included, packing away conveniently into the box previously

ents in the Construction of Settling Tanks or Lodges used
Purification of Sewage and other Foul Waters, and in the
ation of Manufacturers' Liquid Compositions. J. B. Petrie,
eedale-street, Rochdale. Eng. Pat. 3,047. February 11, 1896.

ks are divided into compartments by means of a number of
urfaces so disposed as to form V-shaped divisions, the apex
looking downwards. These inclined surfaces are covered
d bricks, or, better still, glass, so as to be quite smooth. The
e clarified flows from division to division, and the suspended
ling out quickly gravitate to the bottom, sliding down the
mouth surfaces. A plug valve is inserted in the bottom of

the V, so that the sludge can be removed as it collects. Four figures
show the details of construction.

Improvements in the Manufacture and Purification of Ammonium
Nitrate and other Salts. T. Fairley, 17, East-parade, Leeds. Eng. Pat.
1,667. January 23, 1896.

Ammonium sulphate and sodium nitrate are heated with constant
stirring to 108°C. or 110°C., when they react and partially fuse. If
the salts are perfectly dry a certain amount of water must be added,
but generally the hygroscopic moisture present is enough. A complete
reaction cannot be obtained, but it has been shown that a mass of
definite composition can be made. This mass is extracted with boiling
alcohol, which should contain a small amount (about 1%) of free
ammonia, otherwise the nitrate of ammonia is decomposed, and the
crystals finally obtained are discoloured. The ammonium salt so
extracted contains about 10% of admixed nitrate of soda. The salts
when crystallized out are treated in a percolator with water, the latter
being kept passing in a steady stream, while the mixed salts are fed in
at the bottom, and gradually raised to the top, when the ammonium
salt will be discharged in the pure state. The sulphate of soda left
from the boiling alcohol treatment, together with 8% of undecomposed
sulphate of ammonia, is also treated in a percolator with hot water,
thus separating the ammonium salt, which, after crystallization, is used
with the next batch of sodium nitrate.

Improvements in the Manufacture of Ammonium Nitrate. T. Fairley,
17, East-parade, Leeds. Eng. Pat. 1,668. January 23, 1896.

This is a modification of the ammonia-soda process to the production
of pure ammonium nitrate. A saturated solution of nitrate of soda is
passed continuously through a column of solid ammonium bicarbonate.
To facilitate the purification of the ammonium nitrate formed the
smallest amount of water necessary for the reaction should be used.
The solution of ammonium nitrate just obtained, which also contains
bicarbonate of soda and nitrate of soda, is cooled to -15°C, when the
ammonium nitrate crystallizes out. Strong liquors must be used.

Improvements in the Manufacture of Silicates of Sodium and Potassium,
of Nitric and Sulphuric Acids, and of Caustic Soda and Potash.
W. Garraway, Netherfield Chemical Works, Duke-street, Glasgow. Eng. Pat.
2,489. February 4, 1896.

Nitrate of soda or potash is heated with fine sand in the presence of
superheated steam and hot air. Nitric acid is given off, and is con-
densed in a suitable apparatus, leaving the silicate of the respective
alkaline base. The residue is extracted from the unchanged sand and
impurities with water and steam. In connection with a vitriol plant,
the decomposing retort can be heated with the waste heat from the
burners, and the nitric fumes passed direct into the chambers or the
Glover tower. By treating the silicate with lime, caustic alkali is pro-
duced. There are two drawings.

GOLD OUTPUT IN THE RAND.

THE output from the Rand district during the past month, as cabled
by the Witwatersrand Chamber of Mines, amounts to 171,521 oz.
This total, however, is exclusive of the returns of several companies
which, under the title of the "Association of Mines of the South
African Republic," give their joint output as 38,311 oz. The month's
production is, therefore, 209,832 oz., and shows an increase of 3,315 oz.
as compared with the previous total, and an increase of 61,654 oz. as
compared with the corresponding month of 1896. The following table
gives the monthly returns since the beginning of 1894:—

	1894.	1895.	1896.	1897.
	oz.	oz.	oz.	oz.
January	149,814	177,463	148,178	209,832
February ...	151,870	169,295	167,018	—
March	165,372	184,945	173,952	—
April	168,745	186,323	176,707	—
May	169,773	194,580	195,008	—
June	168,162	200,941	193,640	—
July	167,953	199,453	203,873	—
August	174,977	203,573	213,418	—
September ..	176,707	194,764	202,561	—
October	173,378	192,652	199,889	—
November ..	175,304	195,218	201,113	—
December ..	182,104	178,428	206,517	—
Total ..	2,024,159	2,277,635	2,281,874	209,832

THE HYGIENE OF THE HEAVY CHEMICAL TRADES.—Under this
title, Mr. G. Fischer, of Jena, is about to publish a book dealing with
the whole subject of dangerous occupations in the chemical industries.
It will be the conjoint production of five specialists.

Reports of Companies.

THE SALT UNION, LTD.

THE report of the directors of the Salt Union for the year ended December 31, states, with regard to the trade in 1896, the aggregate tonnage delivered by the Union was 1,066,600 tons. During the year there has been a further decrease in the quantity of salt required for the manufacture of chemicals. There has also been a considerable reduction in the export trade, owing to an abnormal demand for freight room in ocean-going vessels for commodities which could bear higher freights than salt. This has been specially the case with India, considerable quantities of railway material having been shipped to Indian ports for the development of railways. The new Provisional Order made by the Local Government Board under the Act of 1891, with regard to competition for subsidence, as amended by a Committee of the House of Commons, was confirmed by Parliament in 1896. A compensation board has now been formed of nine members, three of whom have been elected by the brine pumpers, three by the Northwich Urban and Rural Councils, and three by the Cheshire County Council. The maximum rate leviable is 3d. per 1,000 gallons of brine pumped annually within the Northwich compensation area. River Weaver Navigation Bill, 1896—It was deemed necessary for the protection of the company's interests, as the largest traders on this navigation, to oppose some of the financial and other provisions of this Bill. Certain modifications therein were obtained, with a clause for settling an outstanding claim to compensation in respect of the Newbridge Salt Works simultaneously with the execution of the works authorised by the Weaver Act of 1893 for improving the navigation between Winsford and Northwich. Manchester Ship Canal Bill, 1896—Under this Bill power was sought to close certain tidal openings in the canal, thus prejudicing the rights secured by the Act of 1885 to the salt trade coming down the Weaver, and imposing a permanent burden on the Union without compensation. In these circumstances the directors endeavoured to negotiate for a clause safeguarding the shareholders' interests, but without success; and, as the Committee of the House of Commons rejected the clause proposed by the Union, the Bill was further opposed in the House of Lords, and eventually the protective clause was obtained. Deakin v. Salt Union—The action, which was begun in 1891 by Mr. J. Buckley Deakin, a vendor to the company, for alleged breaches of agreement with him as a salt distributor, has, during the last year, again been before the courts. The Court of Appeal has confirmed upon all points the finding of the Official Referee, who, as previously reported, awarded Mr. Deakin nominal damages of 1s. The Court of Appeal also ordered Mr. Deakin to pay the Union's costs in connection with the assessment of damages. Mr. Deakin has appealed to the House of Lords against this decision. By reason of the continued depression of the salt industry some of the plant, buildings, machinery, rolling stock, and craft have been otherwise utilised, with the object of affording additional sources of profit to the Union. During the year the sum of £10,971. expended on new works has been charged to the general capital account. The amount standing to the credit of the profit and loss account for salt, brine, carriage and sundry trading was £256,343., and from other sources £39,524., making the total amount £295,868. After deducting the cost of maintenance of plant, distributors' discounts, agency, and other charges set forth in the profit and loss account, the profits from all sources amount to £145,292., and, adding the amount brought forward, there is a sum of £156,531. Deducting the debenture stock interest, there remains £102,531. The directors recommend dividends for the year at the rate of 7 per cent. on the preference shares and at the rate of 1 per cent. for the year on the ordinary shares, and that there be carried forward £12,531.

BARROW STEEL CO., LTD.

The report of the directors for the year 1896 states that the improvement in the iron and steel industries, referred to in the last report of the directors as having commenced at the close of the year 1895, has continued during the period now under review. The business of the year 1896 shows a profit of £113,349, and adding the amount at credit of profit and loss account at December 31, 1895, there is a sum of £117,485. Deducting interest upon debentures and debenture stock for the year, there is a balance of £89,959. The directors recommend that this amount be applied as follows. In writing off the amount of the suspense account appearing in the balance sheet at December 31, 1895, £16,884.; defraying special expenditure during the year 1896, not chargeable to capital, £34,971.; payment of the dividends upon the eight per cent. preference shares for the years 1894, 1895, and 1896, £6,786.; payment of the dividend upon the six per cent. preference shares for the year 1894, £22,500.; carrying to a reserve account, £5,000.; and carrying forward an undivided profit of £3,817. The large expenditure during the year 1896 not chargeable to capital includes the cost of the reconstruction of the Bessemer plant. In

carrying out this important work all mechanical and other improvements which the most recent experience has proved to be advantageous have been adopted, and it is confidently expected that, when it is in full operation, a considerable saving in cost of product other advantages will be derived from the expenditure. The departments of the steel works and the blast furnaces have been efficiently maintained.

DIVIDENDS.

UNITED ALKALI COMPANY, LTD.—The United Alkali Company will pay a dividend for the past half-year of 4s. per share ordinary shares, carrying £40,000. to the reserve fund. This dividend with 2s. per share and £55,000. carried to the reserve fund previous year. The production of dry soap has been commencing.

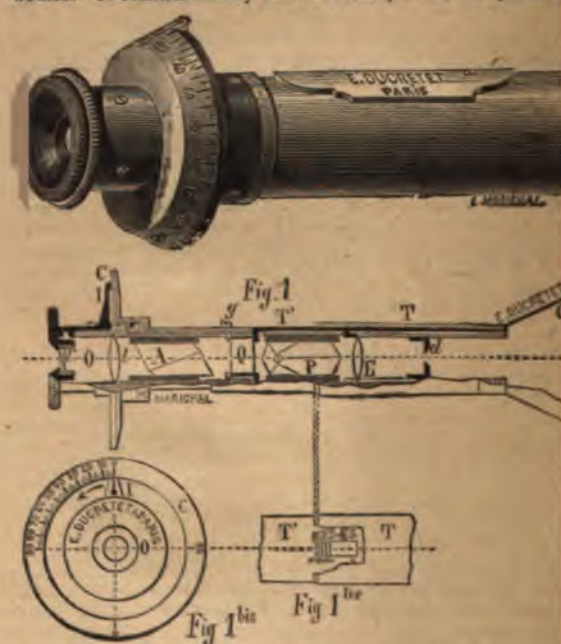
SCOTTISH OIL AND CHEMICAL CO., LTD.—The second general meeting of this company was held in the Religious Rooms, Glasgow, on Wednesday last week, Mr. John Currie presided. The chairman, in moving the adoption of the report, said that the progress that the company had made in general business and construction of the works and plant, besides the making of works under Charlier's patents belonging to the company. The report showed a small profit, but no dividend was declared. Mr. John Raeside seconded the motion. Mr. Robert S. Macdonald, Mr. John Raeside were re-elected directors, and Messrs. Grant & Co., C.A., auditors of the company.

JEYES'S SANITARY COMPOUNDS, LTD.—The annual meeting of Jeves's Sanitary Compounds Company was held recently making ample provision for depreciation, etc., and placing £10,000. reserve, a dividend was declared at the rate of 10 per cent. per annum, a balance of £650. being carried forward.

THE LUNETTE PYROMETER.

A NOVEL and interesting application of circular polarisation is afforded by the "Lunette Pyrometrique," invented by two engineers, M.M. Mesuré and Nouel.

The instrument, as shown in the illustrations, serves for accurate and rapid optical determination of the temperatures of bodies. It consists mainly of two Nicol prisms, the polariser



analyser. When using the apparatus the eye-piece is turned until a given intensity is reached, and at this point the temperature body under observation is indicated on the circular scale, which range from 800° C. to 1500° C. The instrument is accompanied by full instructions for use, and can be obtained from Messrs. L. Forster, Waaggasse 5, Vienna.

LEAD MINING IN FLINTSHIRE.—An improvement in the lead trade is reported from Mold. Messrs. Brunner, Mond, & Co. are putting down machinery at three abandoned mines in the district.

Correspondence.

do not hold ourselves responsible for the opinions expressed by our correspondents.

COST OF SAFE AND UNSAFE OILS.

(To the Editor of the Chemical Trade Journal.)

If you are not tired of this subject I should like, with your mission, to add a few observations regarding cost and safety. and foremost, I think it cannot be too much insisted upon, in the interest, that safety is a far more important consideration. Next let it be understood that those who advocate a low price do so not really on the ground of cost or public interest, but it suits them better to have the present law than one which would enable them to receive less profit. It suits them better to fill our country with dangerous oil than to take the care and responsibility of using only such illuminating oil as is safe to use. Their greatest objection (though they never say so) is their uncertainty as to the effect of a more stringent law on the trade from the producers' view. They anticipate a rise in the price, but it is possible prices might rise without their reaping any greater profit; this is on what they are able to realise by the sale of the increased quantity of petroleum spirit.

On the other hand, if this increased quantity of spirit could be sold at a profit, the producers would lose nothing; they might even make more money than they do now, and the price of illuminating oil might fall at all. This, then, is a mere matter of business chiefly for the producers, and has no real bearing on the question as far as the public are concerned, for it has been stated by competent authorities that oil of 100° F. test is practically no more costly to make than oil of 73° F. test, and it may be taken for granted that the public are whether the oil producers make a profit of 10 per cent. or not, if they can be prevented from adding to the perils of existence.

The characteristic of John Bull that, while running all manner of business, he pursues any enterprise wherever he may be, he always feels that all is safe at home. This question of flash-point is a matter that touches him sorely, if only he understood it aright. It is a matter that touches every man whose wife or child lights the evening lamp; it welcomes him home; and if we could only say, as the secretary of the Iowa State Board of Health is able to say, "have no trouble and no accidents," we should not be at all to quibble about the price of safe oil, preferring safety rather than the lesser risk of the risks to which we are now exposed.

Do not pretend to any practical knowledge of the production of oil, but as regards its use I can testify that some of the oil sold in the country is really used for other purposes where spirit would be more advantageous. This means that if such users of oil could be prevented from using spirit there would be, to that extent at least, an increased quantity of spirit and a decreased consumption of illuminating oil, which would tend to keep the cost to the consumer at about its present level. Such a result would do no harm to anyone, but good, because it would mean that illuminating oil could get as much as they wanted of it, and those who used it for solvent and other extraneous purposes would be equally well pleased with the more volatile spirit. The spirit, known, might also replace with advantage the use of turpentine for purposes where the latter is merely used as a volatile solvent.

Sir, yours, &c.,
Glasgow, Feb. 20th, 1897.

JAS. KAY HILL.

Selected Correspondence.

SULPHATE OF AMMONIA AS A FERTILIZER.

(To the Editor of the Birmingham Daily Post.)

Two letters appear in your issue of the 15th inst. on the subject of nitrate of soda and sulphate of ammonia, one signed by Mr. Thompson, and the other by Mr. T. Vaughan Hughes. With regard to the former, it may be observed that Mr. Thompson, in his letter, both in the first and last paragraphs, clearly indicates that he does not know the difference between sulphate of ammonia and nitrate, so that it is hardly necessary to deal with his letter. The only point on which he quotes Mr. Hunter's has been answered elsewhere. I may point out, however, that the fact that nitrate of soda, on the advice of Lord Rosebery, is excluded from Lord Rosebery's home farm, by any means prove that Lord Rosebery's home farm does not abstain from it. The letter of Mr. Hughes seems to be based on a protectionist suggestion that the Board of Agriculture should encourage the buyers of sulphate of ammonia in preference to nitrate of soda, because the latter is imported, and because, presumably, the

former is home made. That sulphate of ammonia, weight for weight, is "superior" to nitrate of soda in so far as it contains a larger percentage of nitrogen, is known to every agricultural student. It is also, however, known that the nitrogen in nitrate of soda exists in much more readily available form, and that in consequence of this, for the majority of purposes, nitrate of soda, weight for weight, is practically of greater value to the farmer than sulphate of ammonia. No doubt, when the two materials are at about the same price, there may be circumstances in which it becomes a matter of indifference which article is used; but, speaking generally, I believe that our soundest authorities, both at home and abroad, are agreed in regarding nitrate of soda, for most purposes and in most seasons, as the more generally useful manure of the two.

THE SECRETARY PERMANENT NITRATE COMMITTEE.

3, Gracechurch-street, London, E.C., Feb. 18th.

(To the Editor of the Birmingham Daily Post.)

Sir,—With reference to the letters which have appeared in your columns on sulphate of ammonia, I certainly think with the writers that means should be taken to circulate the valuable information imparted by Mr. Carulla as to the respective values of this and nitrate soda. It appears from your market quotations to-day that nitrate of soda is £8. 5s. in London, against sulphate of ammonia £7. 15s. Now, as the latter contains 25 per cent. more nitrogen than the former, the farmers and gardeners who use nitrate of soda are paying £8. 5s. for an article worth less than £6. on current prices, besides the carriage on the extra weight of nitrate required. Further, as the name sulphate of ammonia seems objectionable, could it not be called "nitrogenous manure," which Mr. Carulla actually calls it in closing his second paragraph? I fear the word "sulphate" carries as great an objection to many a mind as the word "nitrate" would appear inviting, for to my own knowledge the farmers on the borders of our large towns ascribe much of the mischief to crops to sulphur from the works chimneys, whereas nitric and muriatic fumes have often more to answer for. The closing lines of Mr. Carulla's letter are deserving of earnest attention. There has been so much outcry against foreign competition, and in favour of protection, that where these objects can be so largely attained without an Act of Parliament, it is important that those most deeply interested should move for themselves.

Your correspondent Mr. Thompson must have made a serious slip of the pen, as I find he calls sulphate of ammonia "gas lime." This is so very misleading as to call for correction. Gas lime, no doubt, has its uses, but is quite outside the question under discussion. His quotation from the report of experiments on the relative values of sulphate of ammonia and nitrate of soda are of great value, and might be inserted in the pamphlet which Mr. Hughes, your other correspondent, happily suggests should be issued on the subject. The public are greatly indebted to Mr. Carulla for raising the question, and to Mr. Hughes for bringing it promptly before the agriculturists in his districts; for, much as it will benefit the farmers and gardeners, it will equally benefit the whole of us, either as consumers of farm or garden produce or as interested in our respective towns where gas is manufactured, for there ammonia is produced, which is the basis of this useful sulphate of ammonia. Looked at in these aspects the subject becomes of national importance, and I hope others may be induced to publish it in our country districts.

February 18th.

CYMRO.

Sir,—It may be useful to many of your readers to know in what quantities and in what manner the above should be applied to garden crops. Perhaps one of your correspondents would supply the information, or say where it can be obtained?

R. W.

Coventry, February 20th.

"PURE GLYCERINE".

(To the Editor of the Birmingham Daily Post.)

SIR,—I see two druggists were fined £3. and costs for adulterating glycerine with about 50 per cent of glucose and labelling the penny bottles "pure glycerine". In the evidence, one of the defendants said he was compelled to put up his large penny bottles because others did it, of course throwing the blame on others. But the inspectors did right in calling upon the makers rather than the small shopkeepers, who are ignorant of the composition of drugs. These are the class of people who pack goods apparently below cost, but in reality selling spurious articles.

Another fact not generally known is that many persons in Birmingham trading as chemists, under the style of druggists, drug stores, &c., are not qualified to dispense drugs. When the public go into these shops for syrup of poppies, paregoric, laudanum, red and white precipitate, and the like, all poisonous, but useful for their purposes, these unqualified persons deal out different drugs. For instance, for precipitate they give white or red lead, as used for paint, and a most dangerous chemical. Is it not time that our city authorities did something to stop this.

Nechells, February 20.

PURE GLYCERINE.

SOCIETY OF CHEMICAL INDUSTRY.

SCOTTISH SECTION.

THE fourth meeting of the session took place at Edinburgh on Tuesday, February 23rd, in the building of the Philosophical Institution. The chief item on the agenda sheet was a paper entitled "Experiments on the Composition of Turnips and the Effects of Manure thereon, with a Method of Analysis," promised by Mr. James Hendrick, Lecturer on Agricultural Chemistry, Marischal College, Aberdeen. The chair was filled by Dr. A. P. Aitken, Professor of Chemistry, Royal Veterinary College, Edinburgh, Lecturer on Agricultural Chemistry, Edinburgh University, etc. Mr. Hendrick's paper dealt mainly with a series of experiments conducted by himself in different parts of Scotland, under varying conditions of soil and with diversified systems of treatment. This section was supplemented by four or five separate tables of data. He said that it was a great matter in experiments of the kind to operate on the poorest possible kind of soil, so that the different manures applied might all the more distinctly show the degree of good they were capable of conferring. There had been, in this country, very little really scientific experiment in turnip bulb rearing. Agriculturists had tried it here and there, but their efforts for the most part lacked exactness, and practically it was a branch which had been very much left to the rule-of-thumb development. This was a blot upon us as a country, and a constant cause of leakage of profit as well; we had only to look to the Continent and note what had been done in beet development there to realise the good that may be achieved through systematic research, sufficiently fostered, of course, by the necessary national outlay for that purpose. As practiced in this country, he said, turnip cropping is perhaps the most expensive, most troublesome, and least satisfactory department of the agricultural industry, and it may be said that what ground the root still retains is due less to its own intrinsic worth than to certain collateral conditions of farmyard economy. It was capable of great improvement, and of being put upon quite a different footing. There had been no lack of experiments, but they were not of the right sort, and the shifts and changes ventured upon in regard to manure practices, and in regard to general agricultural rotation, had been productive of but little that was of scientific value, because the experiments had been conducted for the most part on unscientific principles. This desideratum he had been endeavouring to supply, partly, in the experiments which formed the subject of his paper. These experiments had been entered into during the years 1894-95, and considerable space is taken up in explanation of the methods of sampling and analysis adopted by him. He had made but a beginning, and there was much left to do if turnip practice in the country was to be rescued from its present very unsatisfactory condition, or even if it was to remain at all as a feature in agriculture. They ought, he opined, to cease looking so exclusively to mere quantity, and should rather try to find out how to ensure growths of the highest possible quality. It was necessary also to come by more economical methods of applying nitrogenous manures. Dr. Aitken, in some succeeding remarks, criticised various points on Mr. Hendrick's paper, and seemed to infer that perhaps too much stress was being laid on what the laboratory could do in this matter. Towards the close, Mr. Robert Irvine, of Royston, Edinburgh, explained the working of Pettersen's apparatus for sampling sea water at great depths and for estimating the gases in water. The thanks of the meeting were awarded to both contributors.

SALT SHIPMENTS FROM THE MERSEY.

MR. FALK, in his monthly return of the salt shipments from the Mersey, says:—"The year opens without any material change." The figures given in the report show that the whole of the tendency towards the decline in the amount of salt shipped still continues, and in some cases there is a marked falling-off. In fact, in only two instances are increases noted, and the amounts are by no means large. The increased shipments are to the United States, the figures for the past month being 9,878 tons, as compared with 7,144 tons in January, 1896, and to Central and North America, the increase being from 1,039 tons in January last year to 1,280 tons last month. The figures for the other places named are as follows:—To British North America, 912 tons last month, compared with 1,833 tons in January, 1896; West Indies, 141 tons, compared with 472 tons; Africa, 2,627 tons, against 4,650 tons; Asia, 10,584 tons, against 11,570 tons; Australasia and Pacific Islands, 1,041 tons, against 1,337 tons; European ports (outside the U.K.), 2,784 tons, against 5,486 tons; and to other parts in the United Kingdom, 2,047 tons, compared with 3,105 tons. The total shipments during January last amounted to 31,287 tons, compared with 36,636 tons in January, 1896. Of these, 28,313 tons (compared with 32,900 tons) were shipped from Liverpool, and 2,974 tons (compared with 3,736 tons) from Runcorn and Weston.

EXPORTS OF PETROLEUM FROM U.

THE Chief of the Bureau of Statistics, Washington, following returns of the exports of petroleum and products for December, 1896. The total shipments were 1 gallons, compared with 80,585,246 gallons in 1895. The total for the twelve months ending December, 1896, was 931,785,022 against 853,126,130 gallons during the same period in 1895. Details of the shipments are as follow:—

	CRUDE PETROLEUM.	Gallons
Total, Dec., 1896	11,879,	
" " 1895	10,798,	
	NAPHTHAS.	
Total, Dec., 1896	1,542,	
" " 1895	2,297,	
	ILLUMINATING.	
Total, Dec., 1896	68,364,	
" " 1895	63,482,	
	LUBRICATING AND PARAFFIN.	
Total, Dec., 1896	4,566,	
" " 1895	3,962,	
	RESIDUUM.	
Total, Dec., 1896	43,	
" " 1895		

Trade Notes.

MESSERS. KYNOC'S NEW POWDER FACTORY.—The Grates have granted a license to Messrs. Kynoch, powder-makers to erect a factory at Corringham, Essex. The applicants state will regard the new factory as their principal establishment the new works will employ 4,000 persons.

SOCIETY OF CHEMICAL INDUSTRY: London Section.—meeting will be held on March 1st, when the following paper read: (1) "Relation of Colour to Quality in Malt," by J. W. (2) "Hehner's Bromine Tests for Oils," by J. H. B. Je "Note on the Analysis of Superphosphates," by J. H. C. election of officers and five members to the local committee place at the meeting on April 5th.

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—meeting of the Section will be held in the Theatre of the Laboratories, University College, on Wednesday, March when Dr. G. Schack-Sommer will read a paper on "The by Micro-Organisms in certain Chemical Industries": "reference to Tanning, Brewing, and Wine Manufacture."

LANCASHIRE V. ROBURITE EXPLOSIVES COMPANY.—T of the final appeal in the litigation between the Lancashire Company, Limited, and the Roburite Explosives Company which was commenced on Tuesday in the House of Lords, presiding, was concluded on Thursday. Without the respondents' counsel, their Lordships dismissed the costs. Full report of case will be given in a later issue.

GERMAN REGULATIONS FOR CHROMATE WORKS.—On July next, the new Code of Regulations for German Chrom will come into force. Beside providing for scrupulous clean exclusion of dust, so far as the works are concerned, they contain excellent stipulations for the personal protection and comfort of operatives. No women or children will be permitted to work in the portion of the factory where they would come into contact with chromate, and no man may be employed until he produces certificate of his freedom from such skin and other diseases peculiarly liable to aggravation by chromate poisoning. The regulations also provide for regular medical inspection, and for a due number of cases of sickness.

FATAL NITRO-GLYCERINE EXPLOSION.—A very serious accident occurred on Wednesday morning at Nobel's Works, at Irvine. The explosion took place at twenty-five minutes to 11, and 11 men were killed instantly. The manager states that at the time there were 4,200 lbs. of glycerine before the men started working, and at the time of the explosion there were over 11 tons of it. It was placed on a bogie in 22 boxes of 150 lbs. each, and with the bogie, was blown up. A large portion of the roof of the hut was torn up. All the men in the hut perished. He could not say whether an accident occurred. In another hut half a charge of nitro-glycerine was in danger, but was drowned in time. The chemist and his foreman were among the killed. At Kilwinning, three men from the spot, the lamps were extinguished, as were the 11 train running to Irvine at the time. The explosion was heard at Kilmarnock and Ayr, and plate glass was broken at

DEATH.—We regret to hear of the death of Mr. W. Martyn, of the United Alkali Co.'s Works at Hebburn, which occurred during the night of the 12th inst. very suddenly. Mr. Martyn was only 34 years of age, and leaves a widow and two children.

IRON TO STEEL.—A Chicago paper reports a most important change in the iron trade. It asserts that Mr. Rockefeller (of Standard Oil Company fame) the large owner of iron ore mines, and Carnegie's Works, at Pittsburgh, have joined hands for the purpose of producing steel on a large scale. The output is intended for the markets, and they intend to sell especially to South America and Australia.

All we can say is poor old steel industry.

NAPHTHOL BLACK LAWSUIT.—We hear from Messrs. John Matheson & Co., of New York, that the suit which was brought against them by William J. Matheson, of New York, for alleged infringement of United States Letters patent, No. 345,901, dated August 1886, to Weinburg and Hoffmann, assignors to Leopold Matheson & Co., Frankfurt-on-the-Main, Germany, for "naphthol black powder," in consequence of a sale of "new fast acid black," said suit was decided by his Honour Judge Townsend, of the Court, Southern District of New York, in favour of Mr. Matheson, and a decree allowed him, has been reversed by the United States Court of Appeals. The exact language of the court is as follows: "The decree of the Circuit Court is reversed, with costs, and with instructions to dismiss the Bill." A complete opinion will be mailed upon application to those who may desire it. Messrs. Campbell and Co. state that they are prepared to accept promptly all orders for this colour, and trust that in view of the trouble and expense which they have been put in breaking the monopoly they may secure the support of users. Had they consented to the sale of Mr. Matheson's to increase the market price to the value of five cents per pound, they could have long ago settled the monopoly, and obtained a license, thereby preserving the monopoly. A petition for re-hearing has been refused.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Seems to keep at a nominal figure, there not being a great business doing: 90's are quoted 3s. 1d., and 50/90's remain steady.

With regard to most of the other products there is no change in price. Carbolic acids are firm, with an upward tendency. Solvent naphtha has been moving freely at 1s. 7d. to 1s. 8d., and seems to have touched the bottom, and promises to move somewhat. There is a keen inquiry for forward dealing, about 23s. f.o.b. East Coast.

Ammonia having experienced a relief by heavy ship arrivals, a better inquiry with the close of the month, has advanced in price. Consumers are beginning to show rather more desire for it, but they are still very slow to make an actual bid. Business, however, is very quiet. Prices at the close are:—Sulphate of ammonia makes £7. 17s. 6d., Liverpool £7. 17s. 6d., Hull £7. 17s. 6d., and Leith £7. 17s. 6d., all prompt. Soda steady but quiet.

SCCELLANEOUS CHEMICAL MARKET.

Position of the alkali market, generally, is firm. Values are sound, but demand is slightly less active for export. For soda powder the price is £6. 10s. f.o.r., and £6. 12s. 6d. to £6. 14s. 6d. f.o.b. Chlorates are unchanged: Potash at 4d. 5d. per lb., but with still an easier tendency for forward. Ammonia alkali, 58%, remains at £3. 7s. 6d., bags, f.o.r., and £3. 10s. 6d. f.o.b. Caustic soda is steady, and nominal quotations are: viz.: F.o.b. Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 72%, £8. 2s. 6d.; 60%, £6. 2s. 6d. per ton, 10-ton lots and 20-ton lots. Sulphate of copper rather irregular, but again slightly advanced. Sulphate of iron, 4d. 12s. 6d., f.o.r. There is a better inquiry at 19s. to 20s., f.o.r. The price of vitriol and muriatic acid continues fairly active. Brown lime remains steady at £4. 10s. to £4. 15s., c.i.f. usual quality, £8. 10s., on the spot, but finds only a small demand. Unchanged at 8s. 6d. to 9s. for 40%. Sugar of lead quiet. Price of lead is maintained at the advance. Potash, caustic, is in good request for prompt supplies, and full prices are maintained. White powdered arsenic again dearer at £24. 10s. to £25. 10s. f.o.r. Yellow prussiate of potash, 5½d. per lb. Cyanide of potassium, 11d. nett per lb. For nitrate of soda the market is firm at 8s. 3d. and 8s. 3d. quoted for forward shipments. Carbolic acid is strong at 7½d. for 40%, with an advancing tendency. Sulphuric acid and salt are inclined to droop. Generally, trade in chemical is quiet from all manufacturing centres.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 46s. 2d., Middlesbrough 40s. 4½d. cash, and hematite 49½d. Copper, steady: Chili bars, G. O. B.'s and G. M. B.'s, closed at £51. 6s. 3d. to £51. 11s. 3d. cash, and £51. 15s. to £52 three months. Tin, steady: Straits closed at £61. 11s. 3d. to £62 1s. 3d., cash, and £62 3s. 9d. to £62 13s. 9d. three months; Australian, £63. 1s. 3d.; English ingots, £64. 10s. Lead, firm: Spanish, £11. 13s. 9d. to £11. 15s.; English, £11. 17s. 6d. Silesian spelter, ordinary, £17 10s. to £17 12s. 6d. Nickel, 1s. 2½d. Antimony, £30. 10s. to £31. Quicksilver: First hands, £6. 17s. 6d.; second hands, £6. 16s. 6d. Copper shares, steady: Cape, 2½ to 2½; Copiapo, 2½ to 2½; Libiola, 2½ to 2½; Mason and Barry, 2½ to 2½; Rio Tinto, 27½ to 27½; Tharsis, 6½ to 6½.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The market here for linseed oil is at the moment very dull, with little business passing; but the demand and situation for refined cotton oil is improved, with spot quotations shewing 2s. 6d. per ton advance. The importations to date have been, as against the same time a year ago: Linseed, 61,523 qrs., as against 69,150 qrs.; rapeseed, 13,678 qrs.; against 7,278 qrs.; cottonseed, 34,026 tons, against 38,053 tons. Oilcake, 1,050 tons, against 2,569 tons. Olive oil, 454 tuns, against 772 tuns. 2,590 tons of cottonseed are due here from Alexandria, and 700 tons of linseed from Odessa within the next few days. Linseed oil is dull: spot sellers at 13s. 10½d. naked, whereas business doing for month oil; forward February-April, 14s. 3d.; May-August done at 15s.; boiled and refined £1. to £1. 10s. per ton extra. Refined cotton oil, spot naked, 13s. 3d. per cwt.; forward March-April, 13s. 6d.; May-August, 14s. 3d.; crude ditto, 12s.; filtered refined, 15s. to £1. per ton extra; barrels extra, £1. 10s., and ordinary casks £1. per ton extra. Spirits of turpentine, 21s. 9d. to 22s. per cwt. Castor oil remains firm, at 3½d. per lb. for first pressure. Oleines are unchanged. Green olive oil soap in quiet demand: 60%, £16. per ton, c.i.f. Hull. Cod oils from £16. to £18. per ton. Olive oil show some improvement in price according to origin. Yorkshire grease, £8. to £9. per ton.

CAKES.—Linseed cakes quiet but firm: 95% pure, £6. 10s. per ton; oilcakes, £5. 10s. per ton. Cotton Cakes: Demand quiet, but prices do not yield further. Best makes, £3. 15s. to £3. 16s. 3d.; seconds, £3. 12s. 6d. to £3. 13s. 9d. Rape cakes are unchanged.

PAINTS.—Makers continue active, but do not require to work overtime to keep pace with trade. Prices are: Red and white leads unchanged. Oxide of zinc, £22. per ton. Red oxide, venetian red, black, blue, and green paints can be bought from £10. per ton. Dry colours show no alteration in prices. Paint remover in good demand for export, at 25s. to 30s. per cwt. Imperial black varnish at £5. per ton.

TYNE CHEMICAL REPORT.

TUESDAY

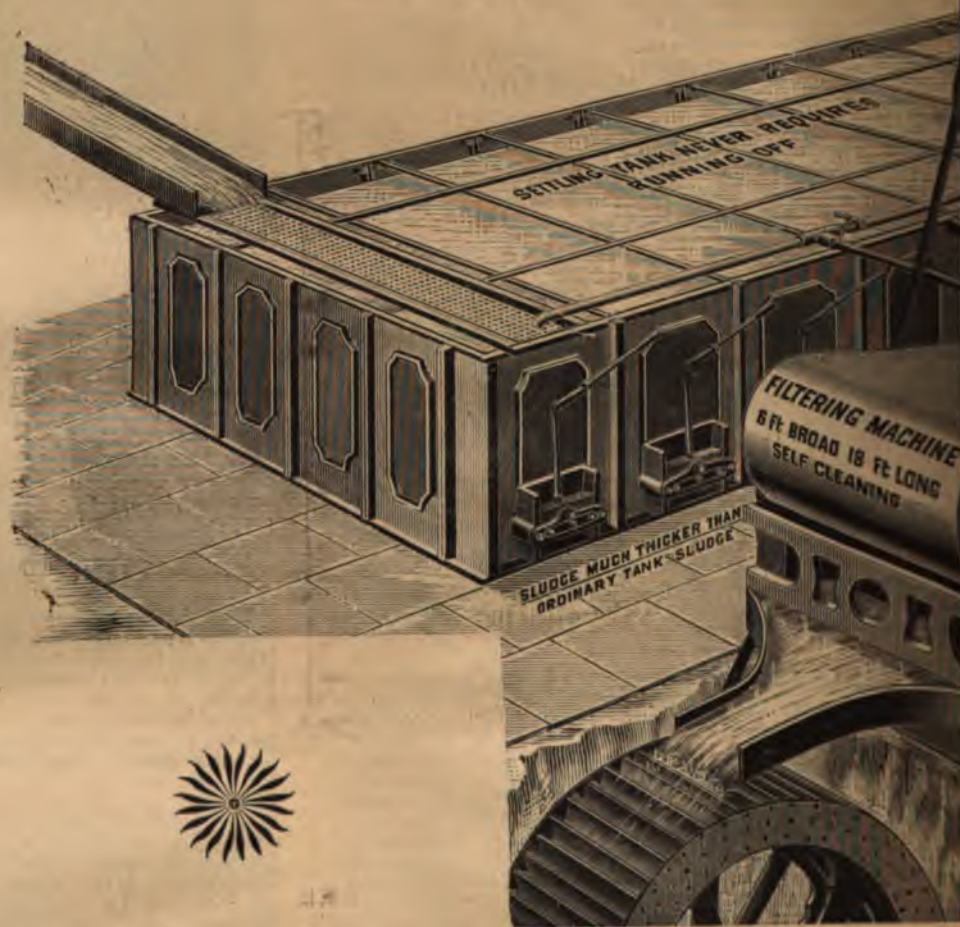
There is practically nothing fresh to report in the chemical trade. Business is only quiet, as is usual at this season of the year. Sulphur is scarce, and in demand at £5. per ton. Caustic, 76/77%, £9., and 70%, £7. 5s. to £7. 10s. per ton. Soda crystals, £2. 2s. 6d. per ton, gross weight, locally.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

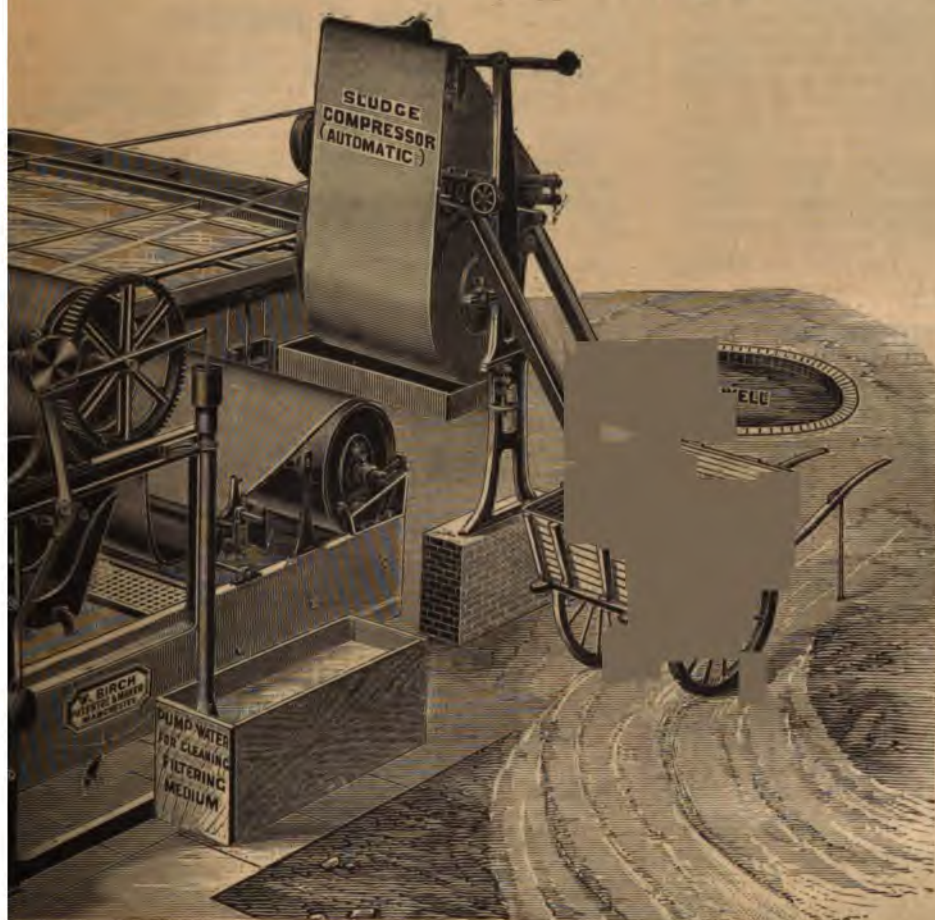
SALT.—South Durham salt steady, at 9s. per ton, f.o.b. Tees.

COALS.—Trade is quiet, and prices remain about the same. Coke is firm, and continues in excellent demand. Best Northumbrian steam, 8s. to 8s. 3d. per ton; second qualities, 7s. to 7s. 3d. per ton; small steam, 3s. to 3s. 3d. per ton. Gas coals, 7s. 6d. to 8s. 3d. per ton. Bunker coals, 7s. 3d. to 8s. 3d. per ton. Household coals, 10s. to 11s. per ton. Coke firm at 15s. to 16s. per ton.

Automatic Sewage Precipitating, F



S and Sludge Compressing Machine.



FOR LETTERPRESS SEE PAGE 158.

REPORT ON MANURE MATERIAL.

There has been more inquiry, and a fair amount of business has been done for prompt and early delivery. In the forward position buyers remain indifferent. Quotations for mineral phosphates are unchanged, but for United Kingdom no business has been reported. Crushed Kurachee bones on spot have been sold at £3. 18s. 9d. per ton, ex store. Bombay bone meal continues to offer at £3. 15s. on spot, and same price would be accepted for parcel for shipment or afloat. Nitrate of soda is quiet but steady, at 8s. 1½d. to 8s. 3d. per cwt., according to quality.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady, and there is more business doing in Lagos at £20. 17s. 6d. to £21. Soft oils offer at £19 to £19. 2s. 6d., and hard at £18. 6d. per ton, all transit. Business is fairly good with olive, recent values being well maintained. Linseed is quiet, and prices are again on the decline, Liverpool makes in export casks now offering at 15s. 9d. to 17s. 6d. per cwt. There is no change in the price of cottonseed, Liverpool refined still standing at 15s. 6d. to 16s. 3d., closing steady. Castor oil keeps very firm, with sellers at 3d. for good seconds Calcutta and first pressure French. Madras is quoted 3½d. per lb. There is a better demand for tallow, but so far there has been no alteration in prices. Resin is firm on spot, but the demand for all grades is rather feeble, so that the market is quiet. Spirits of turpentine have suffered a sharp decline, and are now only moderately inquired for, although sellers offer at 20s. 9d. to 21s. per cwt. Petroleum continues unchanged, with American 6½d. to 7½d., and Russian refined 5½d. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

In consequence of the approach of the end of the month, with the delivery engagements maturing in reference thereto, sulphate of ammonia finds itself the least shade better. Prompt value on that account may be quoted at £7. 15s. to £7. 16s. 3d., but there is nothing in the way of solid improvement perceptible, and prices may be expected to weaken again directly the period's supplies are all arranged for. Forward dealing is still a complete blank. In general chemicals, inquiry goes on respecting spring business, but the feeling has little of strength in it, and the tendency is rather downward than anything else. Chlorate of potash is easier. Borax and boracic acid are both marked down. Mineral oils and paraffins show little or no change, unless it be towards a further weakness in demand for burning oils and solid paraffins as the season goes on. Lubricating oils are well called for at fair prices, forming the one exception. The position of paraffin candles, in reference to the recent drop in the raw materials, is still subject of conference between leading makers.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/62°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, £19., and boracic acid, £29. nett, Glasgow; bicarbonate of soda, 5-cwt casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool;

bichromate of potash, 4½d. nett, for Scotch and English delivery export, 4½d. nett, f.o.b. Glasgow; bichromate of soda, 3½d. G. Scotch and English deliveries (for export, 3½d. nett, f.o.b. G. chlorate of potash, 4d. less 5%, any port; nitrate of soda, 1 to 8s. 4½d.; sulphate of ammonia, £7. 15s. to £7. 16s. 3d. prom. Leith; salammuniac, first and second white, £35. and £4. any port; sulphate of copper, £19., less 5%, Liverpool; scale, hard, 1½d. to 1½d., and soft, 1½d. per lb.; wax, 120° semi-refined, 1¾d. to 2d. per lb.; paraffin (naphtha), 7½d. per gallon; paraffin oil (burning) No. 1, 6½ crystal, 6½d., at Glasgow and other big centres, for Scotch (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. Week's imports of sugar at Greenock were nil.

New Companies.

Clydesdale Chemical Co., Ltd.—CAPITAL, £800. in £1. This company has been formed to carry on the business of manufacturing chemists, etc. Registered Office, Burnbank, East D. Glasgow.

Planet Works, Ltd.—CAPITAL, £50,000. in shares of £1. This company has been formed to carry on Fowler's Patent Light Co., Ltd., and to manufacture and deal in night lights, etc. The subscribers to the memorandum of association are: Smith, 17, Great George-street, S.W., architect; H. Vuong, 7 square, Chelsea, engineer; F. Field, 3, Bucklesbury, E.C., and C. Fowler, 75, Tressillian-road, Brockley, manufacturer; R. T. Fowler, 75, Tressillian-road, Brockley, manufacturer; R. T. 34, Doughty-street, W.C., gentleman; G. E. Harmer, 37, road, Homerton, clerk.

Quick and Co., Ltd.—CAPITAL, £10,000. in shares of £1. This company has been formed to acquire the business of Quick and Co., Ltd., 29, Marylebone-lane, W., and to trade as colour and polish manufacturers. The subscribers to the memorandum of association are:—W. H. Baxter, The Wilderness, Sherborne; A. S. Quick, 10, Somerlayton-road, Brixton, S.W., gentleman; R. C. Bussell, 13, Gower street, W.C., undergraduate; Baxter, 11, High-road, Streatham, director of company; Quick, 10, Somerlayton-road, Brixton; M. Bartholomew, Holbourn Viaduct, E.C., gentleman; F. J. Berryman, 38, square, W.C., Clerk.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

D. NEETHOUSE, E. S. TOMPKINSON, and W. RUDMAN, chemical manufacturers, Droylsden, near Manchester, trading as the Fairfield-road Chemical Co.

G. G. BLACKWELL and G. G. BLACKWELL, junr., manganese and mineral Liverpool, and St. Mary Axe, E.C., under the style of G. G. Black and Co.

A. J. OWEN and T. C. MAYO, oil and grease merchants, lacquer manufacturers, Lozells, Birmingham, under the style of Cameron and Co.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending February 13th.

Acetic Acid—Holland, 25 cks. A. & M. Zimmermann
U. States, 49 cks. Thames S. T. & L. Co., Ltd.

Acetone—Germany, 30 drs. Domeier & Co.
Holland, 9 T. H. Lee

Alkali—France, 80 c. J. Barber & Co.

Alum—Holland, 6 cks. W. Burton & Sons
" 15 R. W. Greeff & Co.

Ammonium Chloride—Holland, 4 cks. H. Lorenz
" 24 cks. J. Owen

Antimony Ore—Algeria, 200 l. H. Grey, jun.
Algiers, 50 F. Williams
Japan, 25 J. Swire & Sons

Arsenic—

Melbourne, 50 brls. Taylor Bros.
" 500 cks. Charles & Fox
Germany, 6 Brit. Anti-Fouling
" C. Co.
U. States, 75 Hopcraft & Broadwater

Asbestos—

Germany, £30 Craven & Co.
Italy, 30 Matthews & Luff
Germany, 64 W. Byford
U. States, 340 "

Barytes—

Germany, 77 cks. J. L. Lyon & Co.
" 66 W. Harrison & Co.
Germany, 90
Holland, 5 H. Keller & Co.
" 48 Soundy & Sons

Bone Meal—

E. Indies, 800 t. A. Hunter & Co.

Bromide of Iron—

Germany, 13 cks. A. & M. Zimmermann

Camphor—

Germany, 150 cks. R. Warner & Co.
" 64 tubs. Eastwood & Holt
" 5 cks. L. & I. D.
" 400 cks. 68 City Coml. Wf.
" 89 S. Figgis & Co.
" 2 cks. T. H. Lee

Caoutchouc—

France, 1½ c. T. H. Lee
Belgium, 2 Société John Cockerill
E. Indies, 9 Ralli Bros.
Penang, 113 E. Boustead & Co.
Zanzibar, 19 L. & I. D. Co.
" 4 Hale & Son
Penang, 47 Butler's Wf. Ld.
S. Russia, 30 Prop. Bull Wf.
Zanzibar, 30 S. Figgis & Co.
Madagascar, 10 Procter Bros.

Castor Oil—

France, 12 cks. M. D. Co.
E. Indies, 23 cks. Ross & Deering

Italy, 15

A. La

Caustic Soda—Germany, 340 c. Parkin

Chemicals (otherwise same)

Germany, £18

France, 34

Belgium, 35

U. States, 540 L. & I.

Germany, 320 A. & M. Z.

" 15 Stobbs, W.

Norway, 145

Holland, 12

U. States, 450 City

Holland, £2 G.

" 72

Germany, 144 L. & I.

" 92 Phillips

Holland, 5 G.

Belgium, 7

" 67 Société Jos

Cl-rate of Lime—Italy, 23 cks. Th

Sodium Nitrate—
Pisagua, 18,051 bgs. F. Huth & Co.

Starch—
Newport News, 200 bgs.
New York, 1,593 sks
Baltimore, 400
Antwerp, 100 cs. J. T. Fletcher
& Co.

Rotterdam, 351
187

Stearine—
Antwerp, 38 bgs. J. T. Fletcher
& Co.

32

Sulphur—
Catania, 100 t. 731 brls.

Tallow—
New York, 59 tcs. Colby & Co.
N. Orleans, 250 brls.
Boston, 150
Campana, 372 cks.

Tartar—
Tarragona, 5 pps.

Tartaric Acid—
Rotterdam, 12 cks.

Turpentine—
Savannah, 3,723 brls.

Ultramarine—
Rotterdam, 24 cks.
Hamburg, 1

White Lead—
Dunkirk, 11 brls.
Antwerp, 10 cks.
Rotterdam, 20

Wood Pulp—
Boston, 89 bls.
Gothenburg, 542

204
Fredriksbald, 2,216
Skien, 1,081
Rotterdam, 131

Zinc Oxide—
New York, 50 brls.
Antwerp, 65
Rotterdam, 20 cks. J. Matthews
& Co.

Zinc Skimmings—
New York, 12 cks.

Zinc White—
Rotterdam, 38 cks.

MANCHESTER.

Week ending February 13th.

Acetate of Lime—
New York, 460 bgs.

Albumen—
Hamburg, 8 pks.

Alizarine—
Rotterdam, 101 cks. 1 cs.

Alumina Sulphate—
Rotterdam, 16 cks.

Aniline Salts—
Rotterdam, 10 kgs.

Betanaphthol—
Rotterdam, 1 brl.

Bone Ash—
Rio Grande Do Sul, 280 t.

Chemicals (otherwise undescribed)

Rouen, 35 cks.
Hamburg, 8 pks.
Antwerp, 9 brls.

Colours—
Boulogne, 1 cs.
Antwerp, 9 cks.
Hamburg, 10 pks.
Rotterdam, 14 cs. 30 bxs. 150 brls.

Extracts—
Hamburg, 100 pks.

Farina—
Hamburg, 50 pks.
Stettin, 1,000 bgs.

Glucose—
New York, 378 brls. T. M. Duche
& Sons

50
Stettin, 55 cks. 250 bgs.

Glue—
Fiume, 8 bkts.
Rouen, 16 cks. 12 bgs.

Lead Acetate—
Hamburg, 8 pks.

496—
5 UTLS. 2 CS.

Mineral White—
Fiume, 285 bgs.

Paraffin Scale—
New York, 187 brls. Anglo-
American Oil Co.

Potash—
Hamburg, 20 pks.
Rotterdam, 40 cks.

Potassium Chlorate—
Rouen, 18 cks.

Saltpetre—
Hamburg, 5 pks.

Starch—
Hamburg, 152 pks.
New York, 1,100 bgs. T. M. Duche
& Sons

2,954
Rotterdam, 10 cs.

Tar Oil—
Antwerp, 21 cks. J. T. Fletcher
& Co.

Tartar—
Rotterdam, 3 cks.

Tartaric Acid—
Rotterdam, 4 cks. 20 kgs.

Varnish—
Boulogne, 10 cks.

Wood Pulp—
Hamburg, 200 pks.
Christiania, 136 bls. W. H. Ingram
Skien, 900
Gothenburg, 4,620

Zinc Ashes—
Antwerp, 17 brls.
Stettin, 8 cks.

Zinc Oxide—
Rotterdam, 50 brls.
Stettin, 10 cks.

HULL.

Week ending February 13th.

Alizarine—
Rotterdam, 28 brls. W. & C. L.
Ringrose

Barytes—
Hamburg, 22 cks. Bailey &
Leatham

Bremen, 132

Camphor—
Hamburg, 4 cks. Wilson,
Sons, & Co., Ltd.

Chemicals (otherwise undescribed)

Christiania, 60 cks. Wilson,
Sons, & Co., Ltd.

Antwerp, 27

Cod Oil—
Christiansund, 10 brls. Wilson,
Sons, & Co., Ltd.

Aalesund, 33 pks.

Colours—
Antwerp, 4 cs. Bailey &
Leatham

Amsterdam, 3 cks. Hutchinson
& Son

Rotterdam, 43 pks. W. & C. L.
Ringrose

Antwerp, 1 6 Wilson,
Sons, & Co., Ltd.

Cream of Tartar—
Rotterdam, 2 cks. Hutchinson
& Son

Farina—
Harlingen, 100 bgs. Wilson,
Sons, & Co., Ltd.

Glue—
Dunkirk, 119 cks. Wilson,
Sons, & Co., Ltd.

Rouen, 64 51 bls. Rawson &
30 cs. Robinson

Antwerp, 5 Bailey & Leatham
Rotterdam, 1 Hutchinson & Son

Nickel Salts—
Rotterdam, 1 ck. Hutchinson
& Son

Ochre—
Rouen, 30 cks. Rawson &
Robinson

Phosphate—
Ghent, 80 t. Wilson,
Sons, & Co., Ltd.

Phosphate Rock—
Bona, 1,365 t.

Pitch—
Antwerp, 10 cks. Bailey &
Leatham

Plumbago—
Hamburg, 9 cks. Wilson,
Sons, & Co., Ltd.

Potash—
Dunkirk, 28 dms. Wilson,
Sons, & Co., Ltd.

Rosin—
Savannah, G., 2,400 brls.

Starch—
Ghent, 50 cs. Wilson,
Sons, & Co., Ltd.

Bremen, 50 Hutchinson & Son

Antwerp, 3,217 Veltmann & Co.
181 Wilson,
Sons, & Co., Ltd.

Tallow—
Dunkirk, 25 cks. Wilson,
Sons, & Co., Ltd.

Boston, U.S.A., 30 tcs.

Treacle—
Boston, U.S.A., 100 brls. Wilson,
Sons, & Co., Ltd.

Turpentine—
Savannah, G., 1,500 brls.

Ultramarine—
Bremen, 20 cks. Lawrence
& Son

12 Blundell, Spence,
& Co.

2

White Lead—
Ghent, 8 cks. Hutchinson
& Son

Amsterdam, 102 W. & C. L. Ringrose
Rotterdam, 50 Hutchinson & Son

Antwerp, 27 Bailey & Leatham
Dunkirk, 24 brls. Wilson,
Sons, & Co., Ltd.

Wood Pulp—
Rotterdam, 76 pks. Hutchinson
& Son

Hamburg, 45 bls. Bailey &
Leatham

Zinc White—
Rotterdam, 10 cks. Hutchinson
& Son

GLASGOW.

Week ending February 18th.

Albumen—
Trieste, 16 cs. S. Millar,
Son & Co.

Arachide Oil—
Rotterdam, 1 ck. J. Rankine
& Son

Barium Sulphate—
Antwerp, 100 bgs.

Bone Meal—
Rotterdam, 628 bgs. J. Rankine
& Son

Chemicals (otherwise undes.)—
Rotterdam, 4 cks. J. Rankine
& Son

Chrome Ore—
Macri, 2,650 t.

Colours—
Antwerp, 13 cks.
Rotterdam, 2 cs. 3 82 pks. J. Rankine
& Son

Cottonseed Oil—
Baltimore, 100 brls.

Dextrine—
Amsterdam, 99 bgs. J. Rankine
& Son

Dyestuffs—
Alizarine
Rotterdam, 24 cks. J. Rankine
& Son

Aniline—
Rotterdam, 2 cks. 8 cs. J. Rankine
& Son

Madder—
Rotterdam, 8 cks. J. Rankine
& Son

Farina—
Antwerp, 10 bgs.

French Chalk—
Fiume, 90 bgs.
Trieste, 20

Glucose—
New York, 250 brls.

Glue—
Fiume, 200 bgs.
Rotterdam, 20 10 cs. J. Rankine
& Son

Manganese—
New York, 32 cks.

Paint—
Genoa, 40 cs.
Marseilles, 60
Amsterdam, 1 dm.

Rosin—
New York, 266 brls.

Starch—
Baltimore, 88 bgs. 100 sks
New York, 100
Antwerp, 100 pks.

Stearine—
Amsterdam, 62 bgs. J.
Rotterdam, 14 143 sks.

Tallow—
Baltimore, 100 tcs.

Tartar—
Oporto, 3 cks.

Ultramarine—
Antwerp, 10 cs.

Varnish—
Marseilles, 1 ck.

White Lead—
Rotterdam, 84 cks. J.

Wood Pulp—
Christiania, 400 bls. 40 cs.

Zinc Oxide—
Rotterdam, 75 cks. J.

New York, 100 brls.

Zinc White—
Rotterdam, 53 cks. Rankin

TYNE.

Week ending February 1st.

Antimony Ore—
Tampico, 260 t. Cooken

Barytes—
Antwerp, 400 bgs. Tyne

Bone Meal—
Rotterdam, 305 bgs. Tyne

Cod Oil—
Drontheim, 5 brls.

Colours—
Antwerp, 2 brls. Tyne
Hamburg, 16 cs.

Glucose—
New York, 200 pks. With

Glue—
Hamburg, 20 bgs. Tyne

Kieselguhr—
Bergen, 420 bgs.

Limestone—
Antwerp, 11 crts. Tyne

Manganese Ore—
New York, 139 pks. With

Paint—
Copenhagen, 8 dms.

Pyrites—
Huelva, 1,348 t. Sulphur & Co.

Soap—
Rotterdam, 18 cs. Tyne

Starch—
Antwerp, 40 cs. Tyne

Wood Pulp—
Gothenburg, 1,722 bls.

Zinc Sulphate—
Gothenburg, 5 bgs.

GOOLE.

Week ending February 1st.

Alkali—
Calais, 13 cks.

Caoutchouc—
Boulogne, 3 bls.

Chemicals (otherwise undes.)—
Boulogne, 2 cs.

Colours—
Amsterdam, 1 ck. 20 cs. 1

Dyestuffs (otherwise undes.)—
Rotterdam, 221 cks. 77 cs. 28

Boulogne, 13 1 98

urg, 150 bgs.	Saltpetre—	Rotterdam, 100 bgs.	GRIMSBY.	Dyestuffs (otherwise undescribed)
tp, 20.	Hamburg, 24 cks.		<i>Week ending February 12th.</i>	Dieppe, 38 cks.
2a, 327 t.	Sodium Silicate—	Rotterdam, 2 cks.	Caoutchouc—	Lamp Black—
dam, 2 cks.	Starch—		Rotterdam, 2 cs.	Malmo, 30 cks.
ago—	Ghent, 139 cs.		Hamburg, 4	Helsingborg, 45
me, 3 cks.	Rotterdam, 10		Chemicals (otherwise undescribed)	Paint—
rk, 20 cks. 68 dms.	Antwerp, 80		Hamburg, 2 cks. 1 cs. 46 pks.	Hamburg, 20 dms.
	Tallow—		Rotterdam, 1	Pitch—
	Dunkirk, 160 cks.		Colours—	Dieppe, 10 cks.
	Wood Pulp—		Hamburg, 19 cks. 27 cs. 25 pks.	Waste Salt—
	Rotterdam, 51 bls.		Antwerp, 30 41 67	Hamburg, 500 bgs.
				Zinc Ashes—
				Antwerp, 10 cks.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		Singapore, 3 2 22	Algoa Bay, 3 15	Sulphite of Lime—
<i>Week ending February 17th.</i>		Beira, 5 14	Auckland, 1 30 kgs. 156	New York, 1 t. 5 c. £237
Acid—		Oporto, 5 cks. 14	Disinfectants—	Sulphur—
nd, 11 cs. £10		Aleppy, 7 16	Calcutta, 500 dms. 7 cks. £74	Oporto, 2 t. 10 c. 30 brls. £40
own, 6 c. 15		Auckland, 32 50	Madras, 105 104	Sulphuric Acid—
		Karachi, 24 157	Melbourne, 74 22 176	Calcutta, 6 cs. £9
			Lorenzo Marques, 11 cs. 13	Madras, 14 11
			New York, 60 18	Aden, 1 t. 3 c. 11
			Sydney, 6 pks. 12	Natal, 20 18
			Oporto, 50 13	Singapore, 20 dms. 25
			Bombay, 2,000 226 30 brls. 774	Beira, 5 5
			Cape Town, 6 cs. 4 cks. 84	
			Hamburg, 130 27	Superphosphates—
			Karachi, 156 27	Canaria, 45 bgs. £16
			Jamaica, 13 13	Rotterdam, 100 t. 18 c. 200
			Beira, 12 28	
			Iodoform—	Tartaric Acid—
			E. London, 1 cs. £43	Cape Town, 1 tank £12
			Kainit—	Melbourne, 1 t. 108
			St. John, N.B., 10 t. £25	Halifax, 15 c. 90
			Lime—	Auckland, 3 kgs. 12
			Surinam, 5 t. £14	Karachi, 10 cs. 57
			Manure—	Algoa Bay, 3 18
			Rocheport, 100 t. £230	
			Halifax, 3 10 c. 30	
			Limon, 121 1,067	
			Jamaica, 53 470	
			Mauritius, 100 950	
			Cape Town, 89 6 536	
			Guernsey, 1 10 12	
			Jersey, 58 640	
			Almeria, 14 16 120	
			Cullera, 404 13 1,819	
			Myrbane—	
			New York, 25 cs. £75	
			Brussels, 10 dms. 18	
			Phosphorus—	
			Wellington, 4 cs. £42	
			Potash Salts—	
			Auckland, 17 t. 13 c. £1,590	
			Potassium Cyanide—	
			Auckland, 10 t. £433	
			Algoa Bay, 21 1,533	
			Bombay, 3 cs. 11	
			Potassium Prussiate—	
			Leghorn, 2 cks. £40	
			Cologne, 4 60	
			Genoa, 1 t. 48	
			Ghent, 2 33	
			Saltpetre—	
			Vigo, 1 t. 10 c. £32	
			Sydney, 1 22	
			Limon, 2 10 12	
			New York, 1 3 30	
			Sheep Dip—	
			Cape Town, 100 cs. £224	
			San Francisco, 300 600	
			New York, 1 65 dms. 20	
			Natal, 14 c. 19	
			Jamaica, 15 7	
			Algoa Bay, 10 t. 6 730 pks. 492	
			Soda—	
			Suez, 5 c. £16	
			Soda Ash—	
			Hobart, 6 t. 2 c. £25	
			Launceston, 4 16	
			Sodium Bicarbonate—	
			Antwerp, 2 t. £54	
			Auckland, 2 11 c. 14	
			Napier, 1 7	
			Beira, 1 7	
			Hobart, 1 2 9	
			Strontium Carbonate—	
			New York, 5 c. £8	
			Strontium Nitrate—	
			New York, 4 t. 9 c. £105	

Sodium Carbonate—

Boston, 56 brls.

New York, 84

Sodium Chlorate—

Boston, 75 kgs.

New York, 25

Sodium Hyposulphite—

Pr. Natal, 10 kgs.

Starch—

Ferrol, 10 cs.

Sulphur—

Tientsin, 2 q. 55.

Cartagena, N.G., 12 c. 1 45.

Pernambuco, 1 t. 4 1 12.

St. John, N.B., 1 4

Philadelphia, 100 1 425.

Boston, 150 6 767.

Sulphuric Acid—

Rio de Janeiro, 3 t. 8 c. £23

Maranham, 18 10

Superphosphates—

Venice, 1,835 t. 10 c. £3,116

Las Palmas, 20 90

Antwerp, 9 17 22

Havre, 90 1 212

Teneriffe, 14 12 38

Tartaric Acid—

Valparaiso, 7 c. 2 q. £57

Corunna, 3 12

Carril, 2 12

Varnish—

Baila, 40 dms. 5 bls.

Columbo, 1 cs.

Ibid., 30 3

White Lead—

Baila, 50 kgs. 10 cks.

Serra Leone, 21

Wellington, 100 20

MANCHESTER.

Week ending February 17th.

Aniline Oil—

Antwerp, 5 dms.

Aniline Salts—

Antwerp, 20 cks.

Anthracene—

Rotterdam, 25 cks.

Carbolic Acid—

Rouen, 205 brls.

Chemicals (otherwise unrescribed)

Rotterdam, 2 cks.

Extracts—

Gothenburg, 2 cks. 5 bgs.

Pyridine—

Rotterdam, 13 cks.

Salt—

Rotterdam, 15 t. 2 c.

Salt Cake—

Antwerp, 2,020 c.

Sodium Naphthionate—

Antwerp, 47 cks.

Rotterdam, 17

Tar Oil—

Antwerp, 2 dms.

HULL.

Week ending February 13th.

Alkali—

Bremen, 120 bgs.

Hamburg, 3 cks.

Ammonium Sulphate—

Dunkirk, 1,500 bgs.

Ghent, 489

Hamburg, 360

Palermo, 75

Benzo—

Rotterdam, 23 cks. 78 brls.

Caustic Soda—

Trene, 64 dms.

Chemicals (otherwise unrescribed)

Antwerp, 26 cs.

Amsterdam, 30 pks.

Bordeaux, 60

Christiania, 4 cks. 5

Danzig, 7

Gothenburg, 10 15 27

Hango, 2

Hamburg, 7 10

Messina, 1

Stettin, 43 134 bgs.

Trieste, 10

Rotterdam, 49 50

Cottonseed Oil—

Antwerp, 414 c.

Amsterdam, 1,380

Dunkirk, 346

Hamburg, 283

Rotterdam, 505

Stettin, 405

Trieste, 401

Creosote—

Hamburg, 23 brls.

Dyestuffs (otherwise unrescribed)

Christiania, 4 cks.

Danzig, 1 cs.

New York, 1 63 bgs.

Stettin, 3

Glue—

Drontheim, 5 bgs.

Guano—

Dunkirk, 216 aks.

Linseed Oil—

Aalesund, 18 c.

Bergen, 89

Bremen, 200

Christiania, 460

Christiansand, 78

Christiansund, 38

Drontheim, 237

Hamburg, 271

Stavanger, 105

Trieste, 130

Manure—

Bordeaux, 60 t.

Dunkirk, 30

Naphtha—

Antwerp, 6 dms.

Painters' Colours—

Antwerp, 32 cks. 4 cs. 110 dms.

Boston, 79 55 kgs.

Bergen, 4 dms.

Bordeaux, 2

Bremen, 2

Christiania, 1

Dunkirk, 3 1 20

Drontheim, 4

Fiume, 35

Ghent, 25

Hango, 21 12

Hamburg, 1

Messina, 4

Rotterdam, 4

Pitch—

Antwerp, 100 t.

Stettin, 21

Soap—

Gothenburg, 3 cs.

Starch—

Bergen, 32 aks.

Sulphur—

Danzig, 15 t.

Tallow—

Dunkirk, 82 cks.

Tar—

Antwerp, 20 cks.

Dunkirk, 58

Hamburg, 5

Varnish—

Antwerp, 4 cks. 8 cs. 4 dms.

Bordeaux, 4 1

Ghent, 1 2

Hamburg, 1 1 1

Palermo, 1

GLASGOW.

Week ending February 18th.

Ammonia (Liquid)—

B. Ayres, 67

Ammonium Chloride—

Bilbao, 6 t. 1 c.

Ammonium Sulphate—

Bruges, 473 t. 12 c.

Venice, 21 3 1/4

Demerata, 276 13 1/2

Castellon, 101 8 1/4

Cetta, 203 16 1/4

Cullera, 201 0 7/8

Hong Kong, 12 10 1/2

Valencia, 178 3/4

Ghent, 4 10

Caustic Soda—

Philadelphia, 24 t. 1/2 c.

Chemicals (otherwise unrescribed)

Algoa Bay, 67

Coal Products—

Naphtha, 55 t.

Piton, 1

Venice, 1,958

U.S.A., 159

Ancona, 1,600 t.

Antwerp, 480

France, 1,347

Gothenburg, 180

Dieppe, 1,344

Tar Oil

Rotterdam, 11 t. 11 c.

Coal Products (otherwise unrescribed)

Christiania, 655

Rotterdam, 610

Dextrine—

New York, 17 t. 10 c.

Dyestuffs (otherwise unrescribed)

Gothenburg, 630

Extracts—

Christiania, 68

Rotterdam, 8

Farina—

Calcutta, 6110

Gelatine—

Canada, 672

Guano—

Hong Kong, 10 t. 1 1/2 c.

Lime—

Trinidad, 634 135.

Linseed Oil—

Kingston, 1 t. 3/4 c.

Canada, 17 10 1/4

Trinidad, 6 1 1/4

Manganese Oxide—

U.S.A., 6105

Manure—

Trinidad, 13 t.

Paint—

Hong Kong, 667

Trinidad, 25

Algoa Bay, 43

Cape Town, 69

Painters' Colours—

Brisbane, 6675

Calcutta, 69

Rockhampton, 119

Townsville, 130

Trinidad, qty.

Demerara, 645 108.

Newcastle, 672

Sydney, 637 108.

Rotterdam, 637 108.

Cape Town, 637 108.

Mauritius, 637 108.

Paraffin Wax—

Santander, 657

Trieste, 114

Venice, 95

Bilbao, 60

Arendal, 30

Barcelona, 76

Bordeaux, 235

Potassium Bichromate—

Calcutta, 6304

Canada, 3 2

France, 161

Amsterdam, 20.

Potassium Chlorate—

Sydney, 690

Salt—

Calcutta, 3 t. 1 1/4 c.

Soap—

Barbadoes, 1 t. 2 1/4 c.

E. London, 5

Sodium Bichromate—

Canada, 3 t. 1 1/4 c.

France, 21 15 1/4

Starch—

Rotterdam, 2 t.

Sulphuric Acid—

Natal, 670

Superphosphates—

Hong Kong, 12 t. 10 c.

Treacle—

Bergen, 3 t. 10 1/2 c.

Christiania, 21 14

Algoa Bay, 2 10

Cape Colony, 2 10

Gothenburg, 29 10 1/4

White Lead—

Newcastle, 618

Transvaal, 73

TYNE.

Week ending February 13th.

Alkali—

Rotterdam, 12 t.

Alum—

Rotterdam, 1 t. 2 c.

Ammonium Sulphate—

Hamburg, 101 t. 2 c.

Antimony—

Antwerp, 10 c.

Hamburg, 7 t. 10

Barium Carbonate—

Antwerp, 10 t.

Bleaching Powder—

Antwerp, 40 t. 10 c.

Rotterdam, 16 18

Copenhagen, 104 13

Caustic Soda—

Antwerp, 7 t. 18 c.

Christiania, 2 18

Rotterdam, 10 3

Copenhagen, 5 16

Seville, 33 17

Copperas—

Copenhagen, 11 c.

Litharge—

Copenhagen, 1 t. 12 c.

Hamburg, 2 5

Magnesia—

Antwerp, 1 c.

Manure (Ammonia)—

Valencia, 119 t. 10 c.

Naphthalene—

Copenhagen, 25 t. 9 c.

Paint—

Antwerp, 17 c.

Cagliari, 3

Hamburg, 5 t.

Rosin—

Bergen, 2 t.

Soda—

PRICES CURRENT.

WEDNESDAY, FEBRUARY 24TH, 1907

PREPARED BY MESSRS. HIGGINS & CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£ s d	
Acetic, 25% l. and 40% l.	per cwt.	5/10 3/4	& 8 1/2
Glacial	"	4/0	
Arsonic S.G., 100%	"	1 4 0	
Fluoric	per lb.	0 0 3 1/2	
Muriatic (Tower Balis), 30% Tw.	per bottle	0 0 10	
(Cylinders), 30% Tw.	"	0 3 0	
Nitric 30% Tw.	per lb.	0 0 1 1/2	
Nitrous	"	0 0 1 1/2	
Oxalic	nett	0 0 3 1/2	
Phosphoric, 17 1/2%	"	0 0 11 1/2	
Picric	"	0 0 11	
Sulphuric (fuming 50% l.)	per ton	15 10 0	
(monohydrate)	"	5 10 0	
(Pyrites, 168%)	"	3 0 0	
" 150%	"	1 5 0	
(free from arsenic, 145%)	"	1 7 6	
Sulphurous (solution) S.G. 1.025	"	3 0 0	
Tannic (pure)	per lb.	0 1 2 3/4	
Tartaric	"	0 1 1	
Arsenic, white powdered	nett per ton	24 15 0	
Alum (loose lump)	"	4 10 0	
Alumina Sulphate (pure)	"	4 2 6	
Aluminoferrous	"	2 5 0	
Aluminium (Ingot metal 98/99 1/2%)	nett per cwt.	7 17 6	
Ammonia, Anhydrous	per lb.	0 1 3	
" 88% = 28° B.	"	0 0 2 1/2	
" = 24° B.	"	0 0 1 1/2	
" Carbonate	nett	0 0 3	
" Muriate	per ton	18 15 0	
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-	
" Nitrate	per ton	33 0 0	
" Phosphate	per lb.	0 0 4 1/2	
" Sulphate (grey) London	per ton	7 17 6	
" (grey) Hull	"	7 17 6	
Aniline Oil (pure)	per lb.	0 0 9	
Aniline Salt	"	0 0 8 1/2	
Antimony	per ton	31 5 0	
" (tartar emetic)	per lb.	0 0 9	
" (golden sulphide)	"	0 0 10	
Barium Chloride	per ton	6 17 6	
" Carbonate (native)	"	3 10 0	
" Sulphate (native levigated)	"	42/6 to 65/-	
Bleaching Powder, 35%	nett	6 10 0	
" Liquor, 7%	"	3 10 0	
Bisulphide of Carbon	"	13 10 0	
Chromium Acetate (crystal)	per lb.	0 0 6	
Calcium Chloride	per ton	2 2 6	
China Clay (at Runcorn) in bulk	"	15/- to 30/-	
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20%	nett per lb.	0 0 7	
Magenta	"	0 3 0	
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0 0 8	
Benzol, 90's	per gallon	0 3 1	
" 50/90	"	0 2 10	
Carbolic Acid (crude 60%)	per gallon	0 2 4	
" (crystallised 40%)	per lb.	0 0 7 1/2	
" (liquid 95/97%)	per gallon	0 0 10	
Creosote (ordinary)	"	0 0 2	
(filtered for Lucigen light)	"	0 0 2 1/2	
Crude Naphtha 30% @ 120° C.	"	0 1 1	
Grease Oils, 22° Tw.	per ton	2 15 0	
Pitch, f.o.b. Liverpool or Garston	"	1 3 0	
Solvent Naphtha, 90% at 160°	per gallon	0 1 7 1/2	
Copper	per ton	51 10 0	
" Sulphate	"	19 5 0	
" Oxide (copper scales)	"	44 10 0	
Glycerine (crude)	"	37 10 0	
" (distilled S.G. 1.250)	"	70 0 0	
Iodine	nett, per oz.	0 0 9	
Iron Sulphate (coppers)	per ton	1 10 0	
" Sulphide (antimony slag)	"	2 0 0	
Lead (sheet) for cash	"	13 0 0	
" Litharge Flake (ex ship)	"	14 15 0	
" Acetate (white)	"	23 0 0	
" brown	"	15 10 0	
" Carbonate (white lead) pure	"	16 15 0	
Nitrate	"	19 0 0	
Lime, Acetate (brown) (ex ship)	per ton	4 17 6	
(grey) (ex ship)	"	8 7 6	
Magnesium (ribbon and wire)	per oz.	0 2 1	
" Chloride (ex ship)	per ton	2 7 6	
" Carbonate	per cwt.	1 17 6	
" Calcined Magnesia	per ton	9 0 6	
" Sulphate (Epsom Salts)	per ton	2 15 6	
Manganese, Sulphate	"	16 10 0	
" Borate	per cwt.	2 10 0	
" Ore, 70%	per ton	3 10 0	
Methylated Spirit, 61° O.P.	per gallon	0 1 8	
Naphtha (Wood), Solvent	"	0 2 7	
" Miscible, 60° O.P.	"	0 2 8	
Oils:—			
Cotton-seed	per ton	15 15 0	
Linseed	"	16 15 0	
Petroleum, American	per gallon	0 0 6	
Stearine	per ton	19 10 0	
Phosphorus (yellow)	per lb.	0 2 3	
(red)	"	0 2 8	
Potassium (metal)	per oz.	0 3 7	
" Bichromate	nett per lb.	0 0 4	
" Carbonate, 90% (ex ship)	per ton	17 10 0	
" Chlorate	per lb.	0 0 4	
" Cyanide, 98%	"	0 0 13	
" Hydrate (Caustic Potash) 90%	per ton	24 5 0	
" (Caustic Potash) 75/80%	"	20 10 0	
" (Caustic Potash) 70/75%	"	20 0 0	
" Nitrate (refined)	per cwt.	1 1 6	
" Permanganate	per cwt.	3 17 6	
" Prussiate Yellow	per lb.	0 0 5	
" Sulphate, 90% (ex ship)	per ton	9 15 0	
" Muriate, 80% (do.)	"	8 10 0	
Silver (metal)	per oz.	0 3 5	
Sodium (metal)	per lb.	0 2 1	
" Carb. (refined Soda-ash) 48%	nett per ton	4 15 0	
" (Caustic Soda-ash) 48%	"	4 5 0	
" (Carb. Soda-ash) 48%	"	4 0 0	
" (Alkali) 58%	"	3 10 0	
" (Soda Crystals)	"	2 0 0	
" Acetate (ex-ship)	"	13 15 0	
" Arseniate, 45%	"	15 0 0	
" Chlorate	per lb.	0 0 5	
" Borate (Borax)	nett, per ton	18 0 0	
" Bichromate	per lb.	0 0 3 1/2	
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	"	9 5 0	
" (74% Caustic Soda)	"	8 1 6	
" (70% Caustic Soda)	"	7 3 6	
" (60% Caustic Soda)	"	6 2 6	
" (pure liquor 90° Tw.)	"	3 15 0	
" 77/78% powdered (99% hydrate)	"	13 10 0	
" Bicarbonate	"	6 10 0	
" Hyposulphite	"	5 3 0	
" Manganate, 25%	"	15 0 0	
" Nitrate (95%) ex-ship Liverpool	per cwt.	0 8 0	
" Nitrite, 98%	per ton	30 0 0	
" Phosphate	"	12 10 0	
" Silicate (glass)	per ton	4 10 0	
" (liquid, 100° Tw.)	"	3 10 0	
" Stannate, 40%	per cwt.	3 2 9	
" Sulphate (Salt-cake)	per ton	0 19 0	
" (Glauber's Salts)	"	1 7 6	
" Sulphide	"	6 15 0	
" Sulphite	"	5 0 0	
Strontium Hydrate, 100%	"	8 0 0	
Sulphocyanide Ammonium, 95%	per lb.	0 0 6 1/2	
" Barium, 95%	"	0 0 4 1/2	
" Potassium	"	0 0 6 1/2	
Sulphur (Flowers)	per ton	7 10 0	
(Roll Brimstone)	"	6 10 0	
" Brimstone: Best Quality	"	4 15 0	
Superphosphate of Lime (26%)	"	2 15 0	
Tallow	"	18 0 0	
Tin Crystals	per lb.	0 0 4 1/2	
" English Ingots	per ton	65 10 0	
Zinc Spelter	"	17 10 0	
" Chloride (solution, 100° Tw.)	"	5 2 6	

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

311.

SATURDAY, MARCH 6, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Chemical Industry	173
Lat	174
Latest Complete Speci-	175
Assiate of Potash Sub-	175
ence	175
Well Joint Committee	176
Jottings	176
Gum	176
ion Prevention Bill	177
espondence	178
Trade Notes	179
Tar and Ammonia Products	180
Miscellaneous Chemical Market	180
The Metal Markets	180
Report on Manure Material	181
Liverpool Oil and Colour Market	181
Tyne Chemical Report	181
Hull Paint, Oil, and Colour Report	181
West of Scotland Chemicals	181
New Companies	181
Imports	182
Exports	184
Prices Current	188

ADVERTISEMENTS.

ANALYTICAL CHEMIST desires Appointment in Laboratory or Works. Address, "B.A." Chemical Trade Journal Office,

R TANK, 31 ft. 6 in. by 6 ft. 6 in. diameter, 1000 lbs. F.O.R. near Manchester. Steam Engines of various sizes. In, 23, Corporation-street, Manchester.

O-EXTRACTOR, with 42 inch Cage, direct driven, with Engine attached, by Manlove, Alliott and Co.; £40. **EXTRACTORS**, with 36-inch Cages, under driven, £18 each; one **TRACTOR**, with 42-inch Cage, under driven, £25; one **HYDRO-TRACTOR**, with 60-inch Cage, under driven. £— Five **FILTER** plates in each, 27 inches square; £45 each.—J. W. Martin, 29 Street, Manchester.

SOLD, one **PAINT ROLLER MILL**, with rollers and with two Pug Mills; equal to new, Follows' and Bate, seen working at Levinstein's, Limited, Crumpsall Vale Chemical Works, near Manchester.

SALE, MINERAL MILL with MINE, well adapted for Lancashire and Midlands; good connection. Satisfactory disposal; splendid opportunity for business man.—Apply to James Co., 17, Cherry-street, Birmingham.

TENDER.

EXETER GAS LIGHT AND COKE COMPANY.

TENDERS FOR TAR.

Directors of the Exeter Gas Light and Coke Company invite TENDERS for their surplus TAR, for one year from Lady

Company's Works filled into purchaser's tanks.

Tenders, endorsed "Tender for Tar," will be received by the undersigned on Monday, the 22nd day of March next, but the Directors do not bind themselves to accept the highest or any tender.

By Order,

W. A. PADFIELD,

Engineer and Secretary.

248, High-street, Exeter,
15th February, 1897.

NOTICES.

Communications for the *Chemical Trade Journal* should be sent by Post Office Orders made payable to—

ESBROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

CURRENT TOPICS.

CALCIUM CARBIDE GOES UNDER.

A SHORT time back we dealt at some length with the possible dangers of calcium carbide, which promises to come to the front as an important article of commerce.

We then believed that it was chiefly the Insurance companies who were most actively antagonistic to the progress of this comparatively new industrial commodity, their action being based on certain misconceptions, but it now appears that the Government were even more susceptible to fear, and that not only was the future of the carbide imperilled by the attitude of the Insurance Companies, but it was seriously menaced by the authorities. The danger was no fanciful one, for in this issue will be found an official notice from Whitehall stating that from April 1st prox., calcium carbide will rank like an explosive under the Petroleum Act of 1871, and thenceforward may not be stored without a licence. The date on which this order in Council comes into force is particularly apt and fitting for the inception of such a grand-motherly imposition.

It is also most amusing that this terrible carbide should be under the wing of the Petroleum Act, but it is only in keeping with the whole affair. It has been shown in the past that some of those who administer this Act know nothing about the article that has been the subject of legislation, and as this seems to have been the case with calcium carbide as well, it is evident that the whole thing must be in the right hands. It should be remembered that the Petroleum Act does not regulate *Petroleum* but only applies to naphtha, gasoline and such like products, to the level of which calcium carbide is reduced. In consequence this is how matters stand.

A solid, only packed in hermetically sealed metal drums or cases may not be stored without a licence, because contact with moisture gives off acetylene gas. Yet petroleum, giving off an explosive vapour at 74°F., can be handled, pumped, poured, and stored in open vessels, and then retailed without any licence or any restrictions whatsoever. Calcium carbide is an article that would only be dealt in by the more scientific and educated portions of the community, who, with a due knowledge of its properties, would know how to act should the sealed container become damaged. Petroleum is for the million, and, with the Government Hall mark of fictitious safety, is retailed by the illiterate to the most ignorant and foolish of a foolishly-ignorant class. Such is Whitehall wisdom.

Again, on the Continent, after due investigation, it has been decided that calcium carbide may at this very moment be legally sent by rail or otherwise transported, and actually sent through the post, without restraint. Here it must not even be stored without a licence, the same as dynamite or gunpowder. It really would seem that, between the Patent Laws, the restrictions on the use of alcohol in manufactures,

and other similar matters prejudicial to trade, we had made up our minds to throw every possible difficulty in the way of home industries, old or new. Had the Government made restrictions concerning the private production of acetylene from the carbide, it would have been another thing altogether. Precautions have been adopted abroad, and we shall give them later on. But to insist on storing the carbide under licence only is foolishness.

THE NEW RIVER POLLUTION BILL.

There are several clauses in the text of the new Bill we print this week which are worthy of attention.

In the main the provisions are the same as those in the Mersey and Irwell and the West Riding of Yorkshire Acts, but in addition to the powers therein conferred, it is sought by the aid of the new measure to extend the scope of the river pollution prevention Acts, and to free to some extent the hands of local authorities.

In the first place a clause has been inserted to prevent the pollution of streams by canals. In certain counties, it will be remembered, there is a somewhat general if mistaken belief that the sole object of the Mersey and Irwell Act is to prevent the streams polluting the Ship Canal.

It is also proposed to grant a local authority the power to contribute to the expenses of a prosecution that may be made by any other authority.

Another clause in favour of local authorities is that by which the Local Government Board can order the rating of certain areas that may be specially benefitted by changes effected, though not originally liable to any call to contribute to the cost of perpetuating such changes.

Clause 9 is one that will be less acceptable to local authorities, as it provides that where necessary manufacturers' waste waters shall be taken into the sewers. This clause threatens, however, to be productive of litigation, as in a sub-section there is a restriction to the effect that such waste can be refused where it is of a nature calculated to injure the manurial value of the sewage works' sludge, or be otherwise detrimental. There is no need to emphasize how this clause may be lucratively exploited by the profession.

SOCIETY OF CHEMICAL INDUSTRY.

NOTTINGHAM SECTION.

THE Nottingham Section of this society met on Wednesday at headquarters, University College, Nottingham. The attendance was good. There were present from Derby, besides Mr. Carulla (the chairman), Messrs. Adams and Herriott. Amongst the members present were Mr. R. M. Caven, Dr. F. Clowes, Mr. Forth, Mr. Golding, Dr. J. D. Granger, Mr. Loxley Meggitt, Mr. J. M. C. Paton, Mr. Pentecost, and Mr. J. G. Ward. A discussion was opened on Messrs. R. M. Caven's and A. Hill's paper on "Some Properties of certain Metallic Phosphates," Mr. Caven explaining a table which he had prepared as the outcome of the paper, by which the analysis of phosphates is much shortened.

Dr. Clowes attached considerable value to Mr. Caven's work, and Mr. Meggitt gave a summary of cognate processes in the same field. Replying to Mr. Ward, Mr. Caven explained that the table was intended as a guide in qualitative analysis, and although it might possibly be made useful for quantitative purposes, yet that had not been the aim in view.

Dr. Clowes then read a paper on "The Explosibility of Liquid Acetylene," prefacing it with much interesting information regarding the preparation and mode of use of the gaseous illuminant in the pure state as prepared by Mons. Raoul Pictet. The lecture was illustrated by lantern views of the various forms of apparatus devised for the purpose of preparing and purifying the gas, chiefly by Mons. Raoul Pictet. The brilliant flame of acetylene was mainly due to the high temperature produced by the dissociation of the gas into its elements. A temperature of 4,500° C. was thus attained. A temperature exceeding that of the electric arc, and to which the great luminosity of the flame is due. The explosive dissociation of the gas under certain conditions was demon-

strated by experiments. One of these consisted in the explosion of a minute quantity of mercuric fulminate, by means of electricity containing acetylene gas only, unmixed with air. On the fulminate a most violent explosion of the acetylene occurred, and damage to the safety screen as to make all who saw it realise that is undergone by those who experiment with acetylene with competent knowledge. It is stated, however, by Berthelot, that extensive explosion by acetylene gas is possible unless the gas is under a pressure exceeding two atmospheres, below this pressure explosion is local.

In regard to liquid acetylene, Dr. Clowes stated that, at temperature it only exerts a pressure of about 30 atmospheres, now store gases in the liquid form up to 90 atmospheres. It therefore, only reaches one third of the pressure that is all which can be safely controlled.

The properties of this liquid are most remarkable. It is the liquid known, having only about one third the weight of water the highest co-efficient of expansion of any liquefied gas known possesses the least refracting power. Notwithstanding the acetylene requires such a low pressure for its liquefaction serious explosions that have occurred appear to have been experiments with the liquid, as it seems peculiarly susceptible. The rough unscrewing of the cap from the cylinder that had completely exhausted, for instance, being considered the. Mons. Pictet himself, of an explosion in his laboratory at F. Clowes concluded with the remark that this and other explosion Continent had made people somewhat chary, and it will some time before the confidence that has been rudely shaken.

Dr. Granger said that friction is one of the most likely causes about an explosion. He thought also that the difficulty of liquefying acetylene of phosphoretted hydrogen stood in the way of use in the liquid form. Of course it was possible to bring this to a very high degree of purity, but every particle of dangerous impurity should be removed. In regard to the use of there would, no doubt, be cases when it could be used to, but generally speaking, he thought in competition with the in gas light it stood no chance on account of its much greater. Clowes replied to questions put by other members, and exhibited and explained an apparatus devised by Dr. T. estimating dissolved gases in water, the object being to further a paper read by Mr. J. M. C. Paton at the end of last session thanks of the meeting having been given both to Mr. Caven and Dr. Clowes for their interesting communications, the Chairman that a desire had been expressed to revive the annual dinner hoped arrangements might be made to have one soon, as such gatherings might possibly help to increase the attendance at ordinary meetings.

A TUNNEL FROM ITALY TO SICILY—Plans have been made for a tunnel uniting Italy with Sicily beneath the Straits of Messina. The Straits are two miles wide at their narrowest, and subject to squalls, so that it was wise to give up the idea of a suspension bridge. The tunnel if carried out will be worthy to rank with those of the St. Gothard, and it will be the most remarkable of the structures of which the Thames Tunnel, at Wapping, was the parent. There will be a saving of time, of course, by the new and greater facilities for merchandise, but travellers will hardly miss the scenery of the straits for the advantage of a through passage to Palermo.

TRYING TO DESTROY THE TRUSTS—Vigorous steps have been taken in the United States to destroy the trust system. It has been brought to bear on the necessities of life, oil, coffee, the like. The Oil Trust, the greatest of all, has, by the use of capital and influence, obtained a monopoly of the trade over half the world. Only the owners of the great Russian dispute its power, and for some time the two sides, the one the Russian Government, the other by Mr. Rockefeller, of New York, have been trying to come to terms. State after State in the passed stringent laws against the operations of these trusts, but the men at the head of the combinations are rich enough, sufficient political influence, to prevent the laws being more strictly enforced. The New York State Legislature has recently investigating the workings of trusts, and it has found that this much further than many thought. One company, which in the coffee-roasting trade, pays nearly a hundred per cent. of up capital. After this the nine and a half per cent. dividend Sugar Trust seems very moderate. The trusts, the New York mittee show, have won their successes by crushing small and excessively charging the consumers, by cutting down their to a minimum, and by regulating their output to a nicety. Trusts also have a "way of making money that others know about."

The Patent List.

It is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally in the name of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

Swage. F. P. Candy. 4,040. February 15.
 its in Concrete and Cement. W. S. Robinson and S. M. L. 4,048. February 15.
 Salves. S. A. Rosenthal. 4,062. February 15.
 Spirit. L. Maiche. 4,089. February 15.
 Sulphate Saturators. H. Howell. 4,095. February 15.
 of Detergent Fluids. R. Stewart. 4,145. February 16.
 of Chloride of Lead. A. J. Boul. 4,179. February 16.
 Copper Alloy. A. F. M. V. Baron. 4,302. February 16.
 Apparatus. A. W. T. Hülssner and P. Röhrig. 4,221. February 16.
 of Potash from their Respective Carbonates. T. Ryan, jun., and The United Alkali Co., Ltd. 4,227. February 16.
 in Air. C. E. Melville, J. Horne, and H. Roantree. 4,302. February 16.
 Iron from Pulverulent Ores and Slags. S. Neffgen. 4,309. February 16.
 in Metals, etc. A. Phillips. 4,358. February 18.
 of Iron and Steel. T. Twynan. 4,377. February 18.
 in Mills. J. Crone, D. C. Taylor, and H. C. Shaw. 4,401. February 18.
 Leather. C. H. O. Collins and J. Hoar. 4,439. February 18.
 and Azotizing Leather for a Manure. C. Tejero. 4,542. February 19.
 of Explosives. L. Roux. 4,672. February 20.
 of Calcium Carbide. F. Bosca. 4,675. February 20.

NOTICES OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, and the rights of publication are reserved. This is the earliest abstracts of Chemical and allied patents accessible to the public.

its in Apparatus for Evaporating Water Containing Salts, in Matter, and in Heating Furnaces for Removing the Ions from the Coils of such Evaporating Apparatus. 1,39, Cannon-street, London, E.C. Eng. Pat. 28,411. December 11, 1896.

tion is essentially a mechanical one. The evaporators are used with such waters as are met with on the West Coast of Scotland. They are evaporated by removable steam coils, which, with incrustation, can be taken away and heated in a place, whereby the incrusting bodies are disintegrated and the improvements relate more particularly to evaporators of the Caird type. There are six drawings.

its in Apparatus for the Treatment of Sewage. W. P. L. 5, Lord-street, Liverpool (communicated by E. de Harven, 32, Margrave, Antwerp). Eng. Pat. 5,690. March 13, 1896.

tools are interposed between the closet and sewer. In one tier out, and it is claimed, are rendered of greater manual separation of the liquid portion. The latter flows through a second cesspool provided with partition walls. By means of this lever contrivance, a quantity of disinfectant is regularly the liquid as it enters the first partition. On reaching a siphon, a syphon carries off a portion of the contents. The siphon is tapped. There is a registering device to show how often it acts, and an overflow pipe is provided in case of a failure. There are five diagrams.

Process and Apparatus for the Manufacture of Carbonic Acid. B. T. L. Thomson, 85, North-side, Clapham Common, London. 6,835. March 28, 1896.

passed over carbon heated in a vertical retort. The gas generated is passed through heated retorts containing copper or suitable oxidizer, so that the dioxide is formed, together with the gas. The gas is then passed into a condenser, where it is cooled and removed, finally passing to a convenient gas holder. The gas is in duplicate, so that one can be reoxidized by passing the other is at work. In the drawing the exhaustor and the gas holder are shown, and also the necessary three-way cocks and valves for passing and diverting the gases, or the air for revivifying the gas.

A New or Improved Process for the Purification of Carbonic Acid Gas Passing from Lime-kilns and Designed for Liquefaction. A. D. Delsenne, 32, Avenue Rogier, Liège, Belgium. Eng. Pat. 3,662. February 18, 1896.

No change is made in the lime burning process, close burning coal being used. The gases, however, are purified in the following way. As they are exhausted from the kiln they are passed up hollow washing towers, down which sprays of water fall intermittently but in rapid succession. The gases are then pumped into closed receivers containing potash lye. The carbon dioxide is absorbed, and the other gases are drawn off. The lye when saturated with the dioxide is run off into a boiler, or other heating apparatus, when the dioxide is liberated, together with a certain amount of aqueous vapour. The latter is mainly removed by refrigeration, before the gas goes into the holders. When drawn from the holder to the compressors, the last traces are removed by passing over calcium chloride.

Process and Apparatus for the Drying and Disintegration of Superphosphates. O. Heymann, 31, Junkernstrasse, Breslau, and A. Nitsch, 21, Michaelisstrasse, Breslau. Eng. Pat. 24,776. November 5, 1896.

Various drawbacks to the usual methods of drying and disintegrating are detailed, and the following process and apparatus suggested as convenient for compassing the two operations. The lumps in the "den" are easily disintegrated by gentle crushing, so they are raised by an elevator, and shot into a revolving cylinder of wire netting. This cylinder is nearly horizontal, the slope being regulated according to the nature of the material being treated. The finer portions fall down a shoot, up which hot air ascends. The larger portions are discharged into a second cylinder, and, being nearly dry, are further disintegrated. The fine portions pass through a shoot to sacks; the rest passes through a pair of crushing rolls, and is again passed by a shoot to the elevator pit, when it is raised, along with the fresh supply of super, to the first revolving cylinder. Mechanically operated beaters keep the cylinders from clogging. There are two diagrams.

RAILLARD'S PRUSSATE OF POTASH SUBSTITUTE.

THIS chemical product at which the inventor has been working for the last ten years, serves to harden iron and malleable cast, either by sprinkling the red-hot iron or by case hardening. The latter process is used to the greatest advantage by filling the case with ordinary coal powder and carefully sprinkling the object to be hardened with the potash substitute, which is not so expensive or dangerous as the prussiate of potash. It can likewise be used for steel and malleable cast, and is therefore to be recommended for use in machine and engineering works, or mechanical and industrial workshops, etc., because:—(1.) It is cheaper than prussiate of potash powder. (2.) It is safer. (3.) In using it a beautiful surface will be obtained, without the cracks which so frequently occur on the surface in using prussiate of potash, so that even polished iron can be hardened by it without any injury to the polish. In order to use it the metal to be hardened is made slightly red hot in a charcoal fire. It is then taken out of the fire and strewn over with the potash substitute. It is once more heated, and well sprinkled a second time with the powder, left outside the fire for some time, and while the iron is sufficiently red hot put into water to allow it to cool, after which it will be found to be as hard as glass. If the hardening is required to go still deeper, then the metal must be heated a third time (but not to white heat) and again sprinkled with the powder, left for a while—say a few minutes—to allow the powder to combine chemically with the iron, by which the hardening will attain a greater depth. Then put it into water to cool. Messrs. G. Kahler and Co., 29, Fenchurch-street, London, E.C., are the sole agents and sole consignees for the United Kingdom and Colonies.

THE LATE MR. ALFRED NOBEL ON MONEY.—Personal friends of the late Mr. Alfred Nobel, who were witnesses to his will, state that his munificent bequests in aid of science (*C. T. J.* 503, p. 17) were made on principle, and under a strong conviction that while men of action usually were able to take care of themselves, men of science, being dreamers, required help. Nobel, they state, used to say—"I am, as a matter of fact, really a Social Democrat, in moderation, of course. My experience of the world has especially taught me that large inherited fortunes never bring happiness, and that they are not properly made use of. They diminish the desire for work, and hamper the faculty for individual development. Large inherited fortunes only promote the degeneration of man. I even disapprove of children inheriting more from their parents than is necessary to educate themselves for the service of mankind." Mr. Nobel, it is stated by those whom he consulted in the matter, did not intend that any one of the prizes provided from the fund left by him should be less than 100,000 crowns—about £5,500.

Legal Intelligence.

HOUSE OF LORDS.

(Before Lord Herschell, Lord Macnaghten, Lord Morris, and Lord Shand.)

THE LANCASHIRE EXPLOSIVES COMPANY (LIMITED) v. THE ROBURITE EXPLOSIVES COMPANY (LIMITED) AND OTHERS.

This was an appeal from an order of the Court of Appeal affirming an order of Mr. Justice Kekewich dismissing a motion made by the appellants that the respondents, Mr. Harris Biggwither, the general manager, and Lieutenant-General Sir John Stokes, the chairman of directors of the respondents' company, might be committed to prison, and should pay costs and damages for an alleged contempt of court in disobeying a judgment of the Court of Appeal, whereby the respondents were restrained from further infringing a patent for an improved explosive compound.

Mr. Terrell, Q.C., and Mr. J. F. Rubie appeared for the appellants; and Mr. Cripps, Q.C., Mr. Wallace, Q.C., and Mr. A. B. Shaw for the respondents.

Both the appellant and respondent companies are manufacturers of explosives. In 1894 the appellants brought an action against the respondents for an injunction to restrain the latter from infringing the appellants' patent, and judgment was given in their favour by the Court of Appeal, an injunction being granted as prayed. The respondents subsequently varied their process of manufacture, but the appellants alleged that they were still infringing their patent, and instituted the present proceedings in order to enforce the order of the Court of Appeal. The motion was heard before Mr. Justice Kekewich, who dismissed it with costs, and his decision was subsequently affirmed by the Court of Appeal, with costs. Against this latter decision the present appeal was brought. The question in dispute between the parties was whether the respondents' new process of manufacture was an infringement of the appellants' patent.

At the conclusion of the arguments for the appellants, Their lordships dismissed the appeal with costs.

MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday, at the offices in Mosley-street, Manchester, under the presidency of Mr. Alderman Thompson.

The report of the consulting sub-committee contained the following:—A serious complaint has been received from the Manchester Ship Canal Company, that on the 16th ult., from 3-30 to 5-25 p.m., the Corporation of Salford were discharging a strong flow of crude and particularly filthy sewage matter into the Ship Canal from their storm overflow immediately below Mode Wheel Locks. The chief inspector reports that upon receipt of such complaint he on the 18th ult. sent one of his sub-inspectors down to investigate the matter, when it was found that the crude sewage was still being discharged into the canal, and that as the weather previously had been fine, the discharge complained of could not have occurred from the ordinary working of the storm overflow. Your sub-committee consider this a very bad case indeed, and they therefore recommend that the clerk be instructed to take proceedings against the Corporation of Salford for the offences complained of and to prevent their recurrence.

Mr. T. W. Killick moved the adoption of this minute.

Dr. Hewitt seconded the motion, and asked if the Salford Corporation were not now under an order?

The Clerk (Mr. Hulton)—That was so, and this, he apprehended, was a breach of the order of the court made 15 months ago.

Mr. Jones (Salford) said the Salford Corporation Committee could not quite understand the matter, and they were intending to investigate it on Wednesday.

The resolution was carried.

Mr. Jones afterwards asked if this matter could not be deferred for a month, so that they could have the result of the investigation. The Corporation had gone to an expense of five figures in trying to purify their sewage, and he thought this proceeding seemed rather arbitrary.

Alderman J. Cheetham asked if it were not irregular to debate a matter after it was decided.

Mr. Killick pointed out that the offence did not happen only one casual time. It was reported on the 16th ult., and was found to be continuing on the 18th.

Mr. Jones appealed to the committee as business men to defer the matter.

Alderman Jenkins did not like to take exception to what was printed in the report, but he hardly believed that the information was correct, as it was not corroborated by the reports made to the Corporation.

The Chairman ruled the discussion out of order.

Mr. Killick said he had no doubt the committee would be if the clerk were instructed not to institute proceedings against till after the next meeting. They had no desire to act arbitrarily.

Alderman Jenkins said Salford was in a difficulty in not received the sanction of the Local Government Board for their works.

It was decided to defer taking proceedings for a month.

Parliamentary Gossipings.

PROPOSED INQUIRY INTO THE PATENT ACT.

In the House of Commons last week, Mr. Schwann as President of the Board of Trade whether, in view of the section 22 of the Patent Act of 1883 did not specify any time which a foreign patentee must work a patent taken out by his country or grant licences in default of working it, and the scope which he must work it was not fixed, and in view of the prevalence of opinion which existed as to the English method of patents as compared with the American system, he would consider the desirability of appointing a Select Committee of the House to the question and report, with a view to the making of such changes in the patent laws as might be shown to be equitable and practicable.

Mr. Ritchie: The hon. member proposes to open up the whole of the patent laws in the investigation which he Committee to undertake. Until it is proved by experience that 22 of the Act is insufficient to effect the working of patents by foreigners in this country, I am not prepared to support a Select Committee.

CARBIDE OF CALCIUM.

THE following official communication has been sent to Whitehall, bearing the date of February 26th, 1897:—

"In consequence of the growing importance of carbide of calcium and the fact that the mere contact of moisture with this substance causes a dangerous evolution of the highly inflammable gas acetylene, the Home Secretary has caused inquiries to be made of the subject, with the result that an Order in Council has been made under the 14th section of the Petroleum Act, 1871, prohibiting the use of carbide of calcium within the operation of that Act. Accordingly, from the date on which such Order comes into force, viz.: 1st April, 1897, it will be unlawful to keep carbide of calcium except in virtue of a licence to be obtained from the local authority under the Petroleum Act.

"Any local authority to whom application may be made for a licence to keep carbide of calcium can, if it so desires, obtain, on application to the Home Office, a memorandum showing the character of the risks to be guarded against, and containing suggestions as to the nature of the precautions likely to be most effectual for securing safety."

INDIAN MICA MINES.—The mica industry is confined to the Nagpur district, and is gradually gaining in importance, according to *Indian Engineering*. Most of these mines are situated in the Government reserved forests, and the rest are scattered over the districts of Gadis-Gawan, Domchanch, Khesmi, Mushnudih-Byria, Dor, and Satgawan. The mica mines in the government estates and in the private estates of unda and Satgawan, which are under government management, have been let out in accordance with the rules framed by the Government. The greater number of the mines situated in the private estates are worked by Messrs. Christien and Company. The total mica mines worked in the district in 1895 is reported to be 1,000 maunds, against 4,849 maunds in the previous year, and the number of workmen employed in the mines 5,409, against 1894.

MECHANICAL HAULAGE BETWEEN LIVERPOOL AND MANCHESTER.—That practical steps are now to be taken in the direction of introducing mechanical haulage between Liverpool and Manchester is evident. A meeting was recently held of the Prize Society committee of the Liverpool branch of the Self-propelled Traffic Association, at which Messrs. Alfred Holt, A. L. Jones, A. Holmes, and E. Shrapnell Smith (hon. secretary) attended and proposed to offer a premium for the best self-contained motor vehicle for the conveyance of goods between Liverpool and Manchester by mechanical haulage, and a resolution in this course was adopted. Tenderers are to base their offer on the assumption that the weight to be carried will not be less than 10 tons per week, and the time occupied in transit must not exceed 15 hours.

S POLLUTION PREVENTION BILL, 1897.

Following is the text of the Bill recently introduced (C.T.J. 506) to make more effectual provision for prevention of the of rivers and streams:—

Enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows: 1. This Act may be cited for all purposes as the Pollution Prevention Act, 1897. 2. This Act shall not extend to or Ireland.

PART I.—SOLID MATTERS.

Any person who puts or throws or causes to be put or thrown or to fall; or knowingly permits to be put or to fall or to be carried; or causes or knowingly permits to be put in such a position as to be liable to fall or to be carried in or over any stream the solid refuse of any manufactory, manufacturing yard, mine, pit-shaft, or quarry, or any ashes, cinders, or any building rubbish or any sludge, or any solid sewage or other waste or putrid solid matter, shall be deemed to have committed an offence against this Act:

And that no person shall be deemed to have committed an offence against this Act for doing or causing to be done any of the following things:—

(1) Constructing in or across any stream, any building, weir, or other permanent work with necessary temporary coffer-dams, which, but for the passing of this Act, he would have a right to construct; or

(2) Pitching or depositing stones or any other suitable or solid materials (not likely to be washed or carried away by the stream current rising to the line of an ordinary flood) at the side or on the bank of any stream for the express and bona-fide purpose of reclaiming land washed away by the action of such stream, or of supporting or protecting the side or bank of such stream, or of repairing the same, or of erecting or repairing any bridge, or any building, drain, sewer, or watercourse upon or in the banks of such stream, or the slopes or walls thereof, or convenient to the point at which the same shall be so shed or deposited; or

(3) Putting into any stream any sand or gravel, or other solid deposit, which shall have flowed from or been deposited by the current of such stream:

Provided that the sand or gravel, or other natural deposit, so put into any stream do not interfere with the due flow or pollute the stream.

PART II.—LIQUID SEWAGE POLLUTION.

Any person who causes to fall or flow or knowingly permits to fall or flow or to be carried into any stream any liquid sewage matter (as in this Act mentioned) be deemed to have committed an offence against this Act.

Provided that no person shall be deemed to have committed an offence against this Act by causing sewage matter to fall or flow or to be carried into any stream through or along a channel which is vested in a sanitary authority, if such sanitary authority shall for the purposes of this Act be deemed to have knowingly permitted the sewage matter so to fall or flow or to be carried into any stream.

Provided also, that no person other than a sanitary authority shall be guilty of an offence under this section in respect of the passing of sewage matter into any drain communicating with any sewer belonging to or under the control of any sanitary authority provided he has the sanction of such sanitary authority for so doing.

On the application of any sanitary authority which at the time of the passing of this Act is committing any offence within the meaning of the foregoing section, the Local Government Board may, if having regard to the circumstances of the case they think necessary, by order in writing direct such authority to execute any works or doing any acts to prevent the commission of the offence, and during the execution of the order (which may be extended by a subsequent order) proceedings under the said section shall be taken by any person named in the order.

The Local Government Board may in such order prescribe the periods within which successive steps preliminary to and the obtaining of power to execute such works or to do such acts shall be taken by such sanitary authority and the period for the execution of the said works and for doing the said acts and such periods may be extended by a subsequent order.

And until such sanitary authority make default in taking any such works or doing any such act within the period prescribed in that behalf in such order no proceedings under the said section shall be taken by the Local Government Board against the person named in the order.

PART III.—LIQUID MANUFACTURING AND OTHER POLLUTION.

6.—(1) Every person who causes to fall or flow or knowingly permits to fall or flow or to be carried into any stream any poisonous noxious or polluting liquid other than liquid sewage matter shall (subject as in this Act mentioned) be deemed to have committed an offence against this Act.

(2) Where any such poisonous noxious or polluting liquid as aforesaid falls or flows or is carried into any stream along a channel used, constructed, or in process of construction, at the date of the passing of the Rivers Pollution Prevention Act, 1876, or any new channel constructed in substitution thereof, and having its outfall at the same spot, for the purpose of conveying such liquid, the person causing or knowingly permitting the poisonous noxious or polluting liquid so to fall or flow, or to be carried, shall not be deemed to have committed an offence against this Act if he shows he is using the best practicable and reasonably available means to render harmless the poisonous noxious or polluting liquid so falling or flowing or carried into the stream.

7. If a person in whom any canal or canalised stream is vested under the provisions of any Act of Parliament or otherwise, causes or permits any poisonous noxious or polluting liquid to fall or flow or to be carried from such canal or canalised stream into any other stream, such person shall (subject as in this Act mentioned) be deemed to have committed an offence against this Act provided that such liquid shall not first have fallen or flowed or been carried into the canal or canalised stream from a stream not vested in such person.

8.—(1) Proceedings shall not be taken under this part of this Act against any person save by a local authority or person in whom a canal or canalised stream is vested, nor without the consent of the Local Government Board.

(2) A local authority shall, one month at least before taking proceedings under this part of this Act against any person, serve by post or otherwise on such person a written notice inviting him, if he desires to show cause why proceedings should not be taken, to appear before the local authority (or a committee of such authority), at a time and place to be specified in the notice.

(3) If the authority, either after hearing such person by himself, agents, and witnesses, or in default of his appearance, decide that proceedings ought to be taken they shall forthwith notify their decision and the grounds thereof to such person and to the Local Government Board, and shall apply for the Board's consent.

(4) The Board may hold a local inquiry into the circumstances of the case, but shall inform the authority and such person whether they give or withhold their consent before the expiration of three months from the date of the authority's application for it.

(5) The Local Government Board shall not give their consent to such proceedings, unless they are satisfied, after local inquiry, and having regard to the reasonableness of the cost, and the effect on the industry or trade in question, that means for rendering harmless the poisonous noxious or polluting liquid are reasonably practicable and available under all the circumstances of the case.

9. Every local authority having sewers under their control shall give facilities for enabling manufacturers within their district to carry the liquids proceeding from their factories or manufacturing processes into such sewers:

Provided that this section shall not extend to compel any local authority to admit into their sewers any liquid which would prejudicially affect such sewers, or the disposal by sale, application to land, or otherwise, of the sewage matter conveyed along such sewers, or which would from its temperature or otherwise be injurious from a sanitary point of view.

Provided also, that no local authority shall be required to give such facilities as aforesaid where the sewers of such authority are only sufficient for the requirements of their district, nor where such facilities would interfere with any order of any court of competent jurisdiction respecting the sewage of such authority.

PART IV.—PENALTIES AND PROCEDURE.

10. Every person who commits an offence against this Act, for which no other penalty is specified, shall be liable for the first offence to a penalty not exceeding twenty pounds, and for a second or any subsequent offence to a penalty not exceeding fifty pounds, and to a penalty not exceeding forty shillings for every day on which the offence is continued after conviction.

11.—(1) Offences under this Act may be prosecuted and penalties recovered in a summary manner before a court of summary jurisdiction.

(2) In any proceedings under this Act, a local authority may act by their clerk or other officer authorised in that behalf.

(3) A court of summary jurisdiction, before which any person is summoned for an offence under this Act, may by order require such person to abstain from the commission of such offence, and where such offence consists in default to perform a duty under this Act, may require him to perform such duty in manner in the said order specified. The court may insert in any order such conditions as to time or mode of action as it may think just, and may suspend or rescind any order

on such undertaking being given, or condition being performed, as it may think just, and generally may give such directions for carrying into effect any order as to the court seems meet.

(4) Any person making default in complying with any requirement of an order of the court, under this section, shall be liable to a penalty not exceeding fifty pounds a day for every day during which he is in default, as the court may order.

12.—(1) If either party in any proceedings feels aggrieved by the decision of a court of summary jurisdiction under this Act, such party may appeal to the next practicable court of quarter sessions, holden in or for the county, borough, or place where the matter of appeal rises.

(2) If either party on an appeal to the said court of quarter sessions feels aggrieved by the decision of the said court, he may appeal from that decision to the High Court in accordance with the rules of the Supreme Court for the time being.

(3) On the hearing of an appeal the High Court shall have power to draw any inference of fact, and may either order a new trial on such terms as the court shall think just, or may order judgment to be entered for any party as the case may be, or may make a final or other order on such terms as the High Court may think proper to ensure the determination on the merits of the real questions in controversy between the parties.

(4) If any defendant shall desire that the questions involved in any summons shall be decided in the High Court of Justice, he may at any time within three days after the service of such summons give notice to the local authority of his said desire, and shall be entitled, as of course, on application to the registrar of the district of the High Court in which such defendant resides, to an order that the said summons and all proceedings thereunder shall be removed into the High Court, and be there determined by one of her Majesty's Judges of Assize at the next practicable assizes for the county where the matter arises, from whose decision an appeal shall be to the Court of Appeal on questions of law only. The provisions of this sub-section shall be carried into effect in accordance with rules of the High Court.

13. No justice of the peace shall be deemed to be incapable of acting in cases arising under this Act by reason of his being a member of a local authority, or by reason of his being as one of several ratepayers, or as one of any other class of persons liable in common with the others to contribute to or be benefited by any rate or fund out of which any expenses incurred by such authority are by this Act to be defrayed.

14. The Local Government Board may make orders as to the costs incurred by them in relation to inquiries instituted by them under this Act, including the salaries of any inspectors of the Board engaged in such inquiries not exceeding three guineas a day, and as to the parties by whom such costs shall be borne, and every such order may be made a rule of the High Court.

15. Inspectors of the Local Government Board shall, for the purposes of any inquiry directed by the Board under this Act, have, in relation to witnesses and their examination, the production of papers and accounts, and the inspection of places and matters required to be inspected, similar powers to those which the inspectors of the said Board have under the Public Health Act, 1875, for the purposes of that Act.

(To be continued.)

Selected Correspondence.

AMMONIUM SULPHATE AS A FERTILISER.

(To the Editor of the Birmingham Daily Post.)

SIR,—A letter from the secretary of the Permanent Nitrate Committee published in your issue of the 20th inst. seems to warrant another intrusion on your space—a proceeding I trust you will again kindly permit. In the maze of British enterprises I suppose it is almost impossible to make an attempt to help a declining industry, or to stimulate the use of waste products made by another, without finding someone having sufficient temerity to decry such attempts, to belittle, and to put a different complexion upon them. And such is the character of the letter of the secretary of the Permanent Nitrate Committee. Having suggested in my last that the Board of Agriculture should lay facts respecting the relative manurial values of nitrate of soda and ammonium sulphate, and not (as the secretary puts it) urge the farmer to use either one or the other, the representative of a gigantic corporation daubs me over with the spectral paint of Protection. But it is useless to expect our technical instruction schemes to reach the present-day farmer. He has not had the advantage of the thorough elementary training received by the average town-born man. The only feasible plan for approaching him seems to be the one I suggested, and that is by an authoritative and commercially disinterested body, such as the Board of Agriculture. Since large areas of the soil are yearly passing out of cultivation, immediate action is demanded to prevent this calamitous state of things. To the average business man this doubtless does not appear.

It would occupy too much space to explain the intimate connection that exists between a country's welfare and its prosperous agricultural industry. Perhaps the present Indian famine will show the helplessness of a people living in a country even temporarily out of cultivation.

"Cymro," in his letter, has fairly treated the question from a monetary point of view and other excellent aspects. Taking figures, and bearing in mind that the Fertilisers and Feeding Stuffs Act draws no distinction between the manurial value of nitrate of soda or of ammonium sulphate, the cost of a unit of nitrogen in nitrate equals 10s. 5d., that in the ammonium sulphate 7s. 6d., a difference of nearly 3s. per unit in favour of the latter. A difference of Mr. Hunter's results on Lord Rosebery's farm would be placed. I do not think his work can be summarily dismissed. The secretary would wish. We have a great deal to learn respecting the precise manner that plants absorb and assimilate their nitrogen from the soil and atmosphere. In the meantime we know that a certain quantity of nitrogen is required for their growth. We can, as a fair approximation, calculate the quantities of manurial agents needed to substitute the loss occasioned by the removals of grain, stock, and other products of the farm. The farmer and horticulturist purchase the constituents of necessary manures at the lowest prices. The secretary has fairly put it, at present it would appear that nitrogen of ammonium sulphate is cheaper than that of nitrate of soda.

J. VAUGHAN HUGHES

Prince's Chambers, Corporation-street, Feb. 23.

(To the Editor of the Birmingham Daily Post.)

SIR,—The attitude of the secretary of the Permanent Nitrate Committee, as manifested by his letter published in the *Post* of February 20, is so fair, that but for the great importance of the subject from a national standpoint, I would be willing to simply thank him for his communication, as he acknowledges that the superiority of sulphate of ammonia over nitrate of soda is known to every agriculturalist. When, however, he decries the letter of Mr. Hughes because it is based upon "a Protectionist suggestion that the Board of Agriculture should urge farmers to buy sulphate of ammonia in preference to nitrate of soda, because the latter is imported, and because, presently, the former is home-made," his Free Trade instinct seems to be at fault.

As I understand the Free Trade argument, it is that we should buy in the cheapest market, not taking into account such questions as the possibility of being engaged in war with unfriendly Powers—a question to which the pocket apart from all other considerations. Now, however, the fact that other correspondents who have written you, as shown by "Cymro" in the *Post* of February 20, is also to the effect that we urge that sulphate of ammonia should be employed at home because it is made here, but because it is cheaper than nitrate of soda, because the latter is imported, and because, presently, the former is home-made, that the sulphate is of a higher condition of affairs that will continue until the price of sulphate is 10 per cent. higher than that of nitrate. That the sulphate is of a higher condition of affairs that will continue until the price of sulphate is 10 per cent. higher than that of nitrate. That the sulphate is of a higher condition of affairs that will continue until the price of sulphate is 10 per cent. higher than that of nitrate.

As regards the value of the unit of nitrogen in the two manures, and the crux of the question lies in this—no better proof can be given of the equal intrinsic worth of the unit in each manure than that no difference is made between them in the Fertilisers and Feeding Stuffs Act, passed in a recent session. If there be any real difference between the two, and the unit in nitrate of soda is really worth more than it is in sulphate of ammonia, may I then ask were the Permanent Nitrate Committee asleep when they allowed the bill to pass through Parliament without protest?

How much this matter is one that concerns everybody is well shown in the speech of Mr. George Livesey, the chairman of the South Metropolitan Gas Company, who, speaking at the recent half-yearly meeting of the proprietors, said, "So also was ammonia sold practically at its lowest figure it had ever realised. This, of course, meant a loss to the company. If they had received the same price for ammonia as they did two years ago, it would have been equal to 10 per thousand cubic feet on the gas." From this fact alone it can be seen how much the community are indebted to you, sir, for drawing this matter to be ventilated in your widely-read and valuable journal.

F. J. R. CARU

Sharon Chemical Works, Derby.

(To the Editor of the Birmingham Daily Post.)

SIR,—In reply to the enquiry of your correspondent "R.W." in your issue of the 22nd inst., in reference to the quantity and manurial value of the above which may be applied to garden crops, I may say that a series of manurial experiments on grass land, conducted by the Technical Instruction Committee of the Staffordshire County Council, in which nitrate of soda was employed on one series of experimental plots in proportion of 1 cwt. to the acre, and this gave good results, even used alone, producing an increased yield of dry hay, as compared with unmanured plots, of 5 cwt. per acre at a cost of 1s. 9d. per acre.

Not unfrequently $1\frac{1}{2}$ cwt. and $1\frac{1}{4}$ cwt. is applied per acre, in two dressings, owing to the ready solubility of sodium or this reason the nitrate should not be applied too early, or merely washed out of the soil, and the same remark applies of ammonia.

It should be remembered that these substances are not permanent but are more stimulating in character, and tend to the production of a considerable quantity of green foliage, hence their suitability for grass land, for cabbage, &c. They are not so suitable for where fruit is required, as with fruit trees, kidney beans, much leafy growth is encouraged. For general purposes it is obtained when nitrate of soda or sulphate of ammonia in conjunction with phosphates and potash salts. In the experiments the dressing which gave the heaviest yield was superphosphate, 1 cwt. of nitrate of soda, and 2 cwt. of cre.

Very interesting experiments conducted by the Cheshire Agricultural Society on the cultivation of potatoes during 1896, in which, up to date, variety, a yield of over $21\frac{1}{2}$ tons per acre was obtained. The manure used was sulphate of ammonia $1\frac{1}{2}$ cwt., potassium phosphate 9 cwt., and superphosphate 9 cwt. per acre. The mixture was drilled at the time of planting. This mixture contains chemical constituents as that used in the Staffordshire experiments employed in relatively larger quantities.

THOMAS TURNER, F.I.C.
Technical Instruction Offices, Stafford.

Trade Notes.

COKE OVENS.—A battery of coke ovens, together with plant for the recovery of bye-products, is about to be erected at the Soothill Wood Colliery, near Batley.

EXPORTS OF ALGERIAN PHOSPHATES.—The shipments of phosphate from the port of Bona in Algeria in 1896 amounted to 142,340 tons, showing an increase of 30,345 tons, or 27.1%, as compared with 1895. Of the total shipments in 1896 there were 39,285 tons in bulk and 103,055 tons in foreign bottoms.

LAMP ACCIDENT.—On Saturday last, Alice Stokes (27), of 1, Great Street, Birmingham, was admitted to the General Hospital with burns to the arms, chest, and face, caused by the falling of a table on which a petroleum lamp was standing. The woman's clothes took fire, and in this way she sustained

MANCHESTER MUNICIPAL TECHNICAL SCHOOL.—The Lord Mayor has received from Mr. Alderman John Grantham a letter in which he expresses his wish to found six scholarships of the value of £100 each, tenable in the Evening Department of the Manchester Municipal Technical School, for the benefit primarily of boys from St. Paul's day and Sunday schools, Bennet-street, and where there is a failure of boys from these schools, for the benefit of other elementary school of the city. Mr. Grantham asks permission to undertake the trust, for the purposes of which he has £1,000 £3. 10s. per cent. Manchester Ship Canal Perpetual Endowment.

REDUCTION OF WAGES.—The workmen employed at Linlithgow have received intimation of a reduction in wages—miners at 10 per cent. and men above ground 5 per cent. This step is considered imperative owing to the low prices being obtained for sulphate of ammonia, which products have never, perhaps, been so low as at present. In giving notice of the reduction the management promise that should market rates improve the wages will be raised to the former standard. It is believed that the workmen of the depressed state of the oil trade generally, will acquiesce in the reduction, but will, on the contrary, acquiesce in the reduction of the directorate.

WATER PUMP CONTRACT.—Henry R. Worthington has just been awarded a contract by the city of Chicago, covering six vertical triple-acting high-duty pumping engines, each of 20,000,000 capacity. This contract amounts to 437,600 dols. and is the largest contract for water-works pumping machinery ever placed in this country. The above six engines each have a daily pumping capacity of 600,000 gals. against a head of 150 ft., and will be supplied with steam at a pressure of 140 lbs. to the square inch. The engines will be 130 HP. This company is also building three vertical triple-acting high-duty pumping engines for the city of Brookline, under a contract amounting to 385,000 dols. These engines will have a daily capacity of 20,000,000 gals. to be delivered against a head of 100 ft., and the steam will be supplied at a pressure of 135 lbs. to the square inch, each engine being of 600 HP.

FIGHTING THE STANDARD.—It is reported from Pittsburg that several independent oil refiners in Pennsylvania have organised a company, called the Pure Oil Company, to fight the Standard Oil Co., *alias* the Oil Trust. There is a well-barbed innuendo in the title of the new company.

MARGARINE FINES.—At the Manchester City Police Court recently, before Messrs. Cardwell and Sharratt, the following persons were summoned by the Manchester Corporation for selling margarine as butter, and were dealt with as follows:—Monica Thompson, 17, Davies-street, Ancoats, fined 2s. 6d. and costs; Thomas William Butterworth, 34, Newburgh-street, Queen's Road, fined 5s. and costs; and Samuel Swindells, Sharpe Cliffe Hall, Ipstones, Staffordshire, was fined 40s. and costs for consigning to a milk dealer in Blackley, on 15th ult., two samples of milk which had 30 per cent. of fat abstracted and 10 per cent. of water added. Mr. Rook, Superintendent of the Sanitary Department, prosecuted.

PAPER FACTORIES IN INDIA.—There are ten paper factories in India, reports the French Consul at Calcutta, of which four are in the presidency of Bombay, four in Bengal, one at Lucknow, and one at Gwalior, with a total capital of 6,272,000 rupees. Rags and native vegetable fibres supply the raw materials. The quality of the paper made is now good, and it finds a ready sale, most of the blotting and letter paper, and envelopes used in the Government offices is of Indian make. About forty million pounds of paper were produced in 1895 (against sixteen millions ten years ago) valued at six million rupees, and employing 3,594 hands. There are a number of smaller paper mills scattered over the country producing "native paper", but no statistics are obtainable in regard to these.

THE PHYSICAL SOCIETY OF GLASGOW UNIVERSITY.—At the meeting of the society in the University, on Friday last week, the vice-president, Mr. Alexander Galt, B.Sc., F.R.S.E., submitted a communication on "Laboratory Experiments with Aluminium." After giving a short review of the history of the metal, Mr. Galt explained that bauxite, the mineral from which the metal is extracted, is mined at Glenravel, Co. Antrim, and conveyed by rail to the works at Larne, 35 miles distant. There alumina (the oxide of the metal) is extracted from the mineral by mechanical and chemical treatment, and transported by boat to Foyers, in Inverness-shire. On the shores of Loch Ness and below the famous falls, electric energy is used to separate, by the aid of the mineral cryolite, the metal aluminium from the alumina. The necessary electric energy is obtained from dynamos worked by turbines, which are driven by water-power, obtained from several large lochs, situated high up on the hills, and which also afford an abundant supply of water for the falls. The aluminium is conveyed to the foundry and rolling mills at Milton, in Staffordshire, where it is worked up into forgings, sheets, rods, tubes, &c. Mr. Galt explained in detail the methods of treatment of the materials at the different places which are owned by the British Aluminium Company, and which is the only company in Britain manufacturing the metal. The industry is a purely British one from start to finish, and Ireland, Scotland, and England have all a share in it. The results of a large number of experiments on the physical and chemical properties of different specimens of aluminium were stated, and numerous interesting specimens shown.

AMERICAN TRUSTS v. TRADE.—With reference to the recent break up of the steel rail pool in the United States, it is said that the first cost to American makers of such rails is at present \$15. per ton, but that probably the Carnegie Company's latest improvements in labour saving machinery will enable it to produce them at something like \$12 per ton. All steel works are said to be making a great effort to conquer the European, and especially the South American markets, which latter had heretofore been almost monopolised by England. In the Messaba Range (Minnesota) Mr. Carnegie and Mr. Rockefeller have jointly the control of the richest iron ore mines of the world. Besides which they hold the controlling interest in the Pittsburg, Bessemer, and Lake Erie Railroad, which will be ready for traffic some time this coming autumn. By its means, it is said, Mr. Carnegie will be able to mine and lay down at his mills at Pittsburg iron ore at 2 dols. per ton, while at present the Pennsylvania furnaces are paying 4 dols. laid down at Cleveland, to which has to be added the freight thence to the Pennsylvania works. With the help of these facilities Messrs. Carnegie and Rockefeller believe they will be able to control all markets, and to beat English rail-makers on their own ground. Of course many less favourably situated concerns will have to go to the wall, but that will be an unavoidable incident. [And when they have done this will they continue to sell below the market price? Experience teaches us when purchasers are being bled to death, they still want "All we can get." In exactly the same way one man made £30,000,000 out of "oil."—Ed. C.T.J.] Mr. Rockefeller is reputed to be the richest man in America, and to be worth about 160 million dollars. Carnegie's fortune is estimated at 50 to 60 million dollars. These two men have, it is understood, guaranteed to the Pittsburg, Bessemer, and Lake Erie road an annual ore traffic of five million tons for 25 years.

PETROLEUM FATALITY.—A fatal explosion occurred recently on board the petroleum tank steamer *Loyola*, from Philadelphia, which discharged 300 tons of oil at the port of Presages. An accumulation of gas in the tanks was ignited by the striking of a match, and an explosion ensued by which one woman was killed and several labourers were injured. The vessel itself sank at its moorings.

PETROLEUM IMPORTS.—The imports of petroleum oil into the United Kingdom in 1896 (according to Messrs. Henry Funck & Co., London) were 3,626,680 barrels—2,992,709 barrels American and 633,971 barrels Russian—and compares with 3,332,909 barrels in 1895—2,730,009 barrels American and 602,900 barrels Russian. In 1883 the imports were 1,329,506 barrels—1,329,004 barrels American and 502 barrels Russian. Last year there were no direct imports of American or Russian oil into Scotland.

MONOPOLY IN THE AMMONIA SODA TRADE.—Messrs. Brunner, Mond, and Co., Ltd., have decided to purchase the Middlewich works of the Cheshire Alkali and Salt Co. A special meeting of the shareholders of the latter has been convened in order to effect the transfer. When the transaction is completed Messrs. Bowman, Thompson and Co., Lostock, will be the only competitors of Messrs. Brunner, Mond and Co. in the mid-Cheshire salt district.

DECISION IN THE CORDITE CASE.—In the Queen's Bench Division on Thursday, Mr. Justice Wright gave judgment in the action brought by the Maxim Nordenfeldt Gun and Ammunition Co., and Mr. Hiram Maxim against Sir William Anderson, Director-General of her Majesty's Ordnance Departments. His Lordship briefly reviewed the facts, and while conceding the validity of the patent decided that the Government had not infringed the patent. Judgment was, therefore, entered for the defendant with costs, but plaintiff to have the costs in so far as the establishment of the validity of the patent was concerned.

THE OIL MONOPOLY IN GERMANY.—During the discussion of the last budget in the German Reichstag, the secretary of the interior, von Boetticher, made the following significant statement: "I can report that the deliberations as to how we can cope with the monopolising of the petroleum trade, have reached a certain conclusion, and that the preparations for measures, which may be taken if another sudden advance should be sprung, are made. For the time being these measures will not be put in operation; first, because the present condition of the market does not require it, second because national industries would be affected by these measures in a manner which calls for a certain leniency."

WALKERS, PARKER AND CO. LTD.—The directors, in their report for the past year, state that the results are again an improvement on recent years. The fluctuations in the price of pig lead have not been so great as in 1895, the variations having been confined to less than £1. per ton. After including the balance of £2,362 brought forward from 1895, the net result is a balance of £9,489, which the directors recommend should be carried forward to the credit of profit and loss. They regret their inability to declare a dividend, as at present the company's finances do not justify such a course, but they look forward hopefully to this result being attained in the current year.

CHEMICAL CLUB SOIREE.—The annual Cinderella dance and soiree in connection with this club was held at the club room, Victoria Hotel, on Saturday last. There was a representative gathering, including Dr. Bowman, Dr. Abraham (Newcastle), Dr. Kleeman, and other members of the club. The music of the evening was ably supplied by Messrs. Nicholson, Leather, and Wardsworth. In the course of a very enjoyable evening Dr. Carl O. Weber gave a most interesting demonstration of the Röntgen rays. He was most successful in showing the bones in the hands of several ladies, through the glove, by means of the platinobarium screen. Their rings and bones were most distinctly visible, and the demonstration, which was greatly appreciated, added materially to the evening's enjoyment.

BLACK SMOKE PROSECUTIONS.—Messrs. M'Connell and Company, Limited, Henry-street, Ancoats; Mr. John Nicholls, Bower-street; Messrs. Galloway Limited, Bennett-street, Hyde-road; and the Ashbury Railway Carriage and Iron Company Limited, Ashton Old-road, were each fined forty shillings and costs at the Manchester Police Court, on Wednesday last week, for creating a nuisance by allowing black smoke to be emitted from the chimneys at their works. Orders for the abatement of the nuisance were granted by the magistrates against Mr. Hammersley Heenan, trading as Messrs. Heenan and Froude, Monsall Road, and Mr. Thomas Bradley, Rochdale Road. Mr. A. T. Rook, superintendent of the Sanitary Department, prosecuted on behalf of the Manchester Corporation. The Sanitary Audit Sub-Committee of the Manchester Corporation were a few days ago waited upon by a deputation representing the chemical manufacturers in the Bradford and Clayton district in reference to the prosecutions in regard to black smoke. Mr. R. Le Neve Foster pointed out that before the amalgamation of the district with Manchester, manufacturers were given to understand that they would be shown some consideration on account of the difficulty of preventing smoke in connection with certain processes that had to be carried on. They were of opinion—and were supported in this by the inhabitants of the district—that the Corporation were now pressing matters too far. The manufacturers had an inspector of

their own taking observations, with a view to preventing carelessness on the part of those employed in firing. Moreover they had erected the best possible appliances. As a matter of fact, in consequence of the action of the Committee, the manufacturers dared not extend the works, and would have no alternative but to leave the district. Dr. Dreyfus quoted figures to show that the death-rate of North Manchester was less than in any other part of the city. The percentage of the diseases was also less. Alderman M'Dougall said what had been stated would receive the careful consideration of the Committee.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Though benzols have declined another penny, they are not so weak and the future is considered favourable. For prompt, 90's stand 3s. and 50/90's 2s. 9d. Carbolic acids of all grades are steady, and without change in values. Napthas are firm, solvent ranging from 1s. 7½d. to 1s. 8d.; crude is still 1s. 1d. Pitch is beginning to let up a little; for East Coast 23s. f.o.b., is nearest value. Anthracene and creosote unaltered.

Sulphate of ammonia has improved. There has been a good demand during the week, and with it there has been an advance in price. The quotations for forward have also hardened, Beckton asking £7. 12s. 6d. for July-September. In the prompt section London outside makes stand at £8., the same price holding good at Liverpool, Hull, and Leith. Nitrate of soda is steady in price, but moving rather slowly.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali market there is a rather firmer tone, resulting from the reported agreement between the principal firms in regard to export alkali. Meantime, quotations are nominally without change at the lowest rates, which have been ruling for export, and for 58% alkali £3. 7s. 6d., bags, f.o.r. makers works. Caustic soda is also steady at prices which have prevailed for some time past, and current quotations, subject to usual variations according to market, may be taken as follows: F.o.b. Liverpool, 77%, £9. 5s. + 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. nett per ton, 10-ton lots upwards. Bleaching powder continues in good request for export at £6. 15s., hardwoods f.o.b. Liverpool, and same price at other ports. Present price f.o.r. makers works, softwoods, £6. 10s., and firm thereat. Chlorates are unaltered, at 3½d. and 4½d. per lb. respectively, for potash and soda. The market for sulphate of copper is somewhat irregular; nearest quotation is £19 to £19 3s. f.o.b. Sulphur firm at £4. 12s. 6d., f.o.r. For saltcake there is more inquiry, and price steady at 19s. to 20s., f.o.r. For potash caustic and carbonate, there is good and regular demand, and prices are steady. Yellow prussiate of potash, 5½d. White powder arsenic scarce, and price firm at £24. 10s. to £24. 15s. for spot and near delivery. Brown acetate of lime unchanged at £4. 15s. to £4. 17s. 6d., Manchester district, and £4. 12s. 6d., c.i.f., at other ports. For grey acetate of lime there is only small demand at £3. White, brown, and grey sugar of lead are only in moderate request, but prices are firm. Nitrate of lead also steady at £19 to £19. 10s. per ton. Nitrate of soda remains at 8s., spot deliveries, with rather firmer market for forward deliveries. Carbolic acid crystals are strong at 7½d. to 7¾d. Aniline oil and salt have a slightly lower tendency. There is, as yet, no indication of any general improvement in demand or values of miscellaneous goods.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed 45s. 7½d., Middlesbrough 40s. 3½d. cash, and hematite 48s. 7½d. Copper firm: Chili bars, G. O. B.'s and G. M. B.'s, closed at £50. 16s. to £51. 3s. 3d. cash, and £51. 5s. to £51. 10s. three months. Tin steady: Straits closed at £60. 10s. to £61. cash, and £61. 2s. 6d. to £61. 12s. 6d. three months; Australian, £62.; English ingots, £65. 10s. Lead dull: Spanish, £11. 12s. 6d. to £11. 13s. 9d. English, £11. 15s. Silesian spelter, ordinary, £17 7s. 6d. £17. 10s. Nickel, 1s. 2½d. Antimony, £31. Quicksilver: F.o.b. hands, £7.; second hands, £6. 18s. 6d. Copper shares steady: Cape, 2½ to 2½; Copiapo, 2 to 2½; Libiola, 2½ to 2½; Mass and Barry, 2½ to 2½; Rio Tinto, 26½ to 26½; Tharsis, 6½ to 6½.

GLASGOW, WEDNESDAY.—Market steady, with a small business. Scotch done at 45s. 7d. to 45s. 7½d. cash, and 45s. 9½d. to 45s. 10 one month; buyers, 45s. 7½d. cash; sellers, 45s. 8d. Cleveland buyers, 40s. 3½d. cash; sellers, 40s. 4½d. Cumberland hematite done at 48s. 7d. cash, and 48s. 9½d. to 48s. 10d. one month buyers, 48s. 7½d. cash; sellers, 48s. 8d. Middlesbrough hematite buyers, 48s. 10d. cash; sellers, 48s. 10½d.

POOL OIL AND COLOUR MARKET.

WEDNESDAY.

Oil is firm, with a good inquiry, there having been sales in Cameroon and soft oils at fair prices. Olive oil of flagging, prices are well maintained, and the demand is continued to fall in price, and the demand is although Liverpool makes are now offered at 15s. 6d. to 16s. 3d. in export casks. Cottonseed is firm, and price for seed still standing at 15s. 6d. to 16s. 3d. per cwt. ready, but first pressure French is a shade easier at 21s. 4d. Calcutta remain at 3d. per lb. Tallow shows no change, the general tone of the market is firmer. Resin keeps firm, but the demand shows unmistakable signs of falling off of turpentine, on the contrary, are up again, there being inquiry, while the price stands at 21s. 3d. per cwt. There is in petroleum except for American, which is down a to 7½d. Russian refined, unchanged, at 5½d. per

8.—Prices are steady, and practically without change. Yorkshire, common, £10. medium, £12. best, £15. common, 40s.; medium, 50s.; best, 60s.; Welsh, best, 50s., and common, 18s.; Irish, Devonshire, 40s. to J.C., 65s. Umber: 40s. to 45s. White lead, £16. changed. Venetian red, £6. to £10. Cobalt: Preps. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

REPORT ON MANURE MATERIAL.

There is to be a fair inquiry for miscellaneous material, and a mess is being done, but consumers' requirements are not manure manufacturers are just now busily engaged in their manures. When a substantial inroad has been made they will need to secure their further requirements in when they can form a more confident opinion as to the season's demand they will be more inclined to consider sales. The quotations for mineral phosphates are unhome buyers shew very little interest, notwithstanding sales. There is nothing doing in River Plate bones or in achievements. Owing to the interdiction of landing of East India in France, considerable shipments have arrived in England which were not expected, and the price for ordinary fallen to £3. 12s. 6d., ex quay Liverpool. Nitrate of soda steady, at 8s. 1½d. to 8s. 3d. per cwt., according to spring demand has scarcely yet set up.

TYNE CHEMICAL REPORT.

TUESDAY.

are quiet, and the demand is still slow. Prices remain on the same basis. Soda crystals, £2 2s. 6d. per ton, locally. Caustic, 76/77, £8 15s. to £9 per ton; 70%, 7. 10s. per ton. Sulphur steady at £5. per ton, and

powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 2s. 6d. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £4. 17s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. casks, £6. 12s. 6d. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, nett; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; potash, 5d. per lb., less 6%; pearl hardening, £3. 17s. 6d. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. 15s. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; alumina, £30. per ton, nett; aluminate of soda, £30.

South Durham salt is unaltered, at 9s. to 9s. 6d. per ton,

Trade is rather better generally, with increased shipments of coals occasioned by the recent railway strike. Coke is in demand for both local and export. Best steam, 8s. to 8s. 3d. per ton; second qualities, 3s. to 3s. 6d. per ton. Bunker coals, 7s. to 7s. 6d. per ton. Household coals, 10s. to 11s. per ton. Coke to 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The situation here presents no feature worthy of any special remark, the market values day after day show no change, and, unfortunately, the normal condition is quiet and dull. The railway strike disorganised business a good deal, but thanks to a good water communication the situation was not so acute. The principal imports to date compared during the same time a year ago, have been: Linseed, 64,023 qrs., against 74,410 qrs.; rape seed, 14,234 qrs., against 9,626 qrs.; cotton seed, 39,417 tons, against 40,540 tons; oilcake, 2,102 tons, against 2,897 tons; Olive oil, 623 tons, against 1,150 tons. Linseed oil, dull, spot, resale done at 13s. 9d. naked, but further buyers—March-April sellers, 13s. 10½d.; May-August sellers, 13s.; boiled and refined £1 to £1. 10s. per ton extra. Refined cotton oil, dull, spot naked, sellers at 13s. 1½d.; forward March-April, 13s. 4½d. naked; May-August, 14s. 1½d. sellers; crude ditto, spot, 11s. 10½d.; March-April, 12s. 3d.; May-August, 12s. 9d.; filtered refined, £1. to £1. 5s. per ton extra; barrels, £1. 10s., and ordinary casks £1 per ton extra. Spirits of turpentine easier. Castor oil remains firm, first pressure, East Indian in cases, 4d. per lb.; French first pressure, 3½d. per lb. Oleines are unchanged. Olive oils are in little better demand, but prices remain unchanged. Green olive soaps 60% fatty acids, £16. per ton c.i.f. Hull. Cod oils from £16. to £18. per ton. Yorkshire grease, £8. to £9. per ton.

CAKES.—A quiet market. Linseed cakes 95% pure, quiet £6 10s. Oilcakes, £5. 10s. Americans, £5. 17s. 6d. Cotton cakes firm, best makes, £3. 17s. 6d.; seconds, £3. 15s. Rape cakes unchanged.

PAINTS.—Manufacturers are beginning already to feel the benefit of spring orders. Prices are: Oxide of zinc, £22. per ton. Dry colours are being largely exported at prices ranging from £3. 15s. to £8. for mineral colours. Red and white leads unchanged. Paint remover, 25s. to 30s. per cwt. Imperial black varnish, £5. 10s. per ton in barrels free.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia still further stiffened under the influence of "end of the month" necessities, and to-day the figure is £7. 17s. 6d. to £8. f.o.b. Leith. There is no movement yet in forward business. Mineral oils and solid paraffins are as before, but changes loom in the not very remote future. The contract season for burning oil comes to a close at the end of March, and as American petroleum quotations have graded very low of late, it is all but a certainty the Scotch oil will have to descend in proportion. The fall in solid paraffin has led the candlemakers to reduce their prices for the finished product. Ordinary sorts are now down to about 2s. 6d. per dozen lbs.—a very low price, relatively. Lubricating oils alone are healthy, at good prices firmly held. The market for general chemicals does not take up much with the advance of spring, and the tendency is still rather down than otherwise.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/62°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d. 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, £18. 10s., and boracic acid, £28. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 4½d.; sulphate of ammonia, £7. 17s. 6d. to £8. prompt, f.o.b. Leith; salammiac, first and second white, £35. and £33. nett. any port; sulphate of copper, £19., less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1¼d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 7½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 86s° £5. to £5. 5s., 88s° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 5,800 bags beet unrefined.

New Companies.

Acetylene Gas Corporation, Ltd.—CAPITAL £150,000., in £1. shares. This company has been formed to adopt certain patents and an agreement with the Acetylene Trust. The subscribers to the memorandum of association are:—F. W. Newton, 89a, Queen's-road,

Acid—	
24 pks.	Kirkpatrick & Co.
11 cks.	G. Rahn & Co.
Arine—	
3 pks.	H. Brooks & Co.
1 bbl.	J. L. Lyon & Co.
6 cs.	W. Harrison & Co.
12	J. Barber & Co.
20	W. Harrison & Co.
12	Steinhoff, Sons, & Co.
10 pks.	W. Davis
1	T. H. Lee
1	Staveley & Starr
Lead—	
3 cks.	B. & F. Wf. Co.
55 cks.	F. G. Clifford
3	J. Matton
59	J. L. Lyon & Co.
19	Perkins & Homer
36	F. G. Clifford
40	Leach & Co.
Alp—	
320 pks.	Henderson, Craig, & Co.
1,300	Moreton Cox Bros.
387	W. G. Taylor & Co.
240	Johnsen & Jørgensen
1,854	F. Claydon & Co.
150	Hummel & Co.
453	E. J. & W. Goldsmith
396	Tough & Henderson
300	W. E. Bott & Co.
1,200	J. Sharp
400	Page, Son, & East
5	Phillips & Graves
40	H. Lambert
ide—	
200 brls.	M. Ashby, Ltd.
25 cks.	Fleming's Oil & Chemical Co.
23	J. Matton
phate—	
100 ckt.	W. Balchin
7 cks.	Thile & Sankey

VERPOOL.

ending February 18th.

um—	
1 cs.	Davies, Turner & Co.
h—	
979 bgs.	H. & W. Nelson
ack—	
20 brls.	E. F. Houghton & Co.
cal—	
12,000 bgs.	
Oil—	
970 cs.	Ralli Bros.
Soda—	
1 ck.	G. Aldsworth & Co.
eed Oil—	
101 brls.	Kentucky Refining Co.
385	
of Tartar—	
5	Sachse & Klemm
3	Baird Bros.
Blood—	
263 bgs.	H. & W. Nelson
ls—	
15 pks.	
56 cks.	
45	
on, Divl—	
63 bgs.	Cunard S. S. Co., Ltd.
acts	
40 bgs.	
ibler	
249 bls.	
go	
246 cts.	
97 cs.	
abolams	
3,450 bgs.	960 bls.
tella	
8 bgs.	T. Ruston & Co.

Saffron		
Alicante,	2 cs.	Ismay, Imrie & Co.
Shumac		
Palermo,	1,225 bgs.	
Valonia		
Patras,	675 bgs.	Papayanni & Jeremias
"		
Syra,	1, 55 980	L. J. Vuzunaras & Co.
Farina—		
Havre,	2,112 bgs.	Cunard S. S. Co., Ltd.
Fiume,	100	
Glucose—		
Rotterdam,	25 cks.	
Hamburg,	100	
New York,	350 brls.	T. M. Duché & Sons
"	499	
Baltimore,	150	
Newport News,	300	
Glue—		
Genoa,	5 cks.	Thile & Sankey
Fiume,	100 bgs.	T. M. Duché & Sons
"	74 pks.	Co-op. W'sale Society, Ltd.
Rouen,	12 cks. 8 cs.	
Lamp Black—		
New York,	10 brls.	B. R. Vickers & Sons
Limestone—		
Antwerp,	1 crt.	J. T. Fletcher & Co.
Mineral White—		
Fiume,	100 bgs	
Ochre—		
Rouen,	4 cks.	R. J. Francis & Co.
Bordeaux,	48	
Paraffin Scale—		
New York,	276 brls.	Thompson & Bedford
Philadelphia,	41	
Plumbago—		
Hamburg,	20 brls.	
Potash—		
Rouen,	58 cks.	Co-op. W'sale Society, Ltd.
Stettin,	20	Sachse & Klemm
"	2	
Antwerp,	20 dms.	
Pyrites—		
Huelva,	1,612 t.	Matheson & Co.
Saltpetre—		
Hamburg,	19 cks. 10 kgs.	
Calcutta,	1,058 bgs.	
Soap—		
Gibraltar,	4 bxs.	J. Crosfield & Sons
Hamburg,	1 pcl.	
Naples,	191 cs.	
Bari,	109	
Philadelphia,	2	
Boston,	2	
Newport News,	225 brls.	
Soapstone—		
Genoa,	150 bgs.	G. Huntriss & Co.
Bordeaux,	300	G. G. Blackwell, Sons & Co.
Starch—		
Rotterdam,	50 cs.	
New York,	560 bgs.	J. T. Fletcher & Co.
Antwerp,	186	
"	112	
Newport News,	500 bgs, 400 sks.	
Stearine—		
Rouen,	13 bgs.	Co-op. W'sale Society, Ltd.
Antwerp,	13	J. T. Fletcher & Co.
"	63	
Newport News,	100 pks.	
Superphosphates—		
Antwerp,	250 bgs.	
Tallow—		
Boston,	50 tcs.	
New York,	50 hds.	H. & W. Nelson
Zarate,	182 pps.	
Treacle—		
Charente,	6 qr.-cks.	
Bordeaux,	6 pks.	
Boston,	2,000 brls.	

Waste Salt—		
Hamburg,	508 bgs.	
White Lead—		
Trieste,	20 brls.	Maunder Bros.
Dunkirk,	35 cks.	
Wood Pulp—		
Boston,	1,571 bdis.	Spicer Bros., Ltd.
	92 bls.	22 Christie & Co.
New York,		
Skien,	1,020	
Drammen,	4,240	
Christiania,	1,254	
Zinc Oxide—		
New York,	10 brls.	
Antwerp,	65	
Zinc White—		
Rotterdam,	200 cks.	

MANCHESTER.

Week ending February 20th.

Acetic Acid—		
Ghent,	3 brls.	10 crbys.
Albumen—		
Boulogne,	4 cks.	Wilson, Son, & Co.
Alizarine—		
Rotterdam,	13 cks.	Wilson, Son, & Co.
Barytes—		
Antwerp,	200 bgs.	
Chemicals (otherwise undescribed)		
Rotterdam,	1 cs.	
Antwerp,	1 ck.	
Colours—		
Rotterdam,	32 cks. 28 cs.	2 brls.
Hamburg,	25	35
Boulogne,	11	Wilson, Son, & Co.
Glucose—		
Rotterdam,	10 kgs.	
New York,	400 brls.	
Glue—		
Rotterdam,	8 cks.	110 bgs.
Hamburg,	38 bgs.	
Rotterdam,	50	Wilson, Son, & Co.
Indigo—		
Rotterdam,	5 chts.	Wilson, Son, & Co.
Iron Oxide—		
Rotterdam,	1 pk.	Wilson, Son, & Co.
Limestone—		
Antwerp,	7 crts.	
Litharge—		
Rotterdam,	22 cks.	
Logwood—		
Cape Haitien,	500 t.	
Mineral White—		
Bordeaux,	100 cks.	G. G. Blackwell, Sons, & Co.
"	290	100 bgs. J. & P. Hutchison
Pitch—		
Rotterdam,	13 cks.	Wilson, Son, & Co.
Potash—		
Hamburg,	2 cks.	
Boulogne,	10 1/4 dms.	Wilson, Son, & Co.
Saltpetre—		
Hamburg,	1 ck.	
Soap—		
Rotterdam,	2 cs.	
Soda—		
Antwerp,	4 brls.	
Sodium Acetate—		
Antwerp,	2 cks.	
Sodium Nitrate—		
Rotterdam,	4 cks.	
Starch—		
Rotterdam,	181 cs.	
Hamburg,	20 cks.	
Antwerp,	56	
New York,	563 sks.	J. T. Fletcher & Co.
Antwerp,	20 cs.	Bytham
Newport News, U.S.A.,	125 brls.	
"	599 bgs.	K. J. K.
"	200	Chicago Ref. Co.
Stearine—		
New York,	50 hds.	Co-op.
"	25 cs.	W'sale Society
Tallow—		
New York,	100 hds.	Co-op.
"		W'sale Society

Tar Salt—		
Hamburg,	5 cks	
Tar Waste—		
Rotterdam,	4 cks.	Wilson, Son, & Co.
Tartar—		
Bordeaux,	3 cks.	J. & P. Hutchison
White Lead—		
Rotterdam,	5 cks.	
Zinc Ashes—		
Antwerp,	8 cks.	
Zinc Oxide—		
Rotterdam,	50 brls.	Wilson, Son, & Co.
Antwerp,	20	

HULL.

Week ending February 20th.

Acids—		
Leghorn,	5 cks.	Wilson, Sons, & Co., Ltd.
Bari,	54	"
Albumen—		
Libau,	5 cs.	
Asbestos—		
Genoa,	3 cs.	Wilson, Sons, & Co., Ltd.
"	6 bls.	
Barytes—		
Antwerp,	131 cks.	Bailey & Leatham
Bremen,	47	
Antwerp,	35 brls.	Johnson Bros.
Ghent,	34 cks.	Hutchinson & Son
Benzol—		
Rotterdam,	3 cks.	W. & C. L. Ringrose
Bone Meal—		
Hamburg,	500 bgs.	
Castor Oil—		
Leghorn,	10 cs.	Wilson, Sons, & Co., Ltd.
"	3	
Chemicals (otherwise undescribed)		
Hamburg,	165 bgs.	Wilson, Sons, & Co., Ltd.
Antwerp,	135	"
Rotterdam,	1 bkt.	Hutchinson & Son
Cod Oil—		
Drontheim,	8 brls.	Wilson, Sons, & Co., Ltd.
Aalesund,	39	"
Bergen,	82	"
Colours—		
Trieste,	78 cks.	Wilson, Sons, & Co., Ltd.
Amsterdam,	3	Hutchinson & Son
Antwerp,	3 pks.	Sissons Bros. & Co.
"	10	Wilson, Sons, & Co., Ltd.
Rotterdam,	18	Hutchinson & Son
Antwerp,	6 bxs.	Reckitt & Sons
Rotterdam,	1 cs.	W. & C. L. Ringrose
	129 pks.	
Cream of Tartar—		
Rotterdam,	1 ck.	Hutchinson & Son
Cryolite—		
Copenhagen,	4 cks.	Wilson, Sons, & Co., Ltd.
Dyestuffs—		
Alizarine		
Rotterdam,	13 pks.	W. & C. L. Ringrose
	56 brls.	
Shumac		
Trieste,	35 bls.	Wilson, Sons, & Co., Ltd.
Palermo,	254 bgs.	"
"	2,025	
Farina—		
Hamburg,	80 bgs.	Wilson, Sons, & Co., Ltd.
Glue—		
Rotterdam,	1 ck.	Hutchinson & Son
Antwerp,	8	Bailey & Leatham
Hamburg,	20 bgs.	
Rouen,	4 cks.	5 cs. Rawson & Robinson
Dunkirk,	31	Wilson, Sons, & Co., Ltd.
Fiume,	100 bgs.	

Lead Acetate—			
Hamburg,	4 cks.	Bailey & Leatham	
"	8	Wilson, Sons, & Co., Ltd.	
Ochre—			
Marseilles,	150 cks.	Rawson & Robinson	
Rouen,	11		
Phosphate—			
Coosaw,	2,300 t.	Hammond, Emes, & Co	
Ghent,	80	Wilson, Sons, & Co., Ltd.	
Pitch—			
Amsterdam,	25 cks.	W. & C. L. Ringrose	
Antwerp,	24	J. M. Hamilton & Co.	
Plumbago—			
Genoa,	80 bgs.		
Potash—			
Dunkirk,	1 ck.	Wilson, Sons, & Co., Ltd.	
Pumice Stone—			
Messina,	180 bgs.	Wilson, Sons, & Co., Ltd.	
"	3 cks.		
Saltpetre—			
Hamburg,	10 brls.	Wilson, Sons, & Co., Ltd.	
"	90 kgs.		
Soap—			
Marseilles,	6 cs.	Wilson, Sons, & Co., Ltd.	
Starch—			
Ghent,	80 cs.	Wilson, Sons, & Co., Ltd.	
Antwerp,	40	Bailey & Leatham	
Bremen,	1,039	Veltmann & Co.	
Stearine—			
Antwerp,	25 bgs.	Wilson, Sons, & Co., Ltd.	
Sulphur—			
Catania,	1,251 pks.		
"	160	100 t. Wilson, Sons, & Co., Ltd.	
Tartaric Acid—			
Rotterdam,	4 cks.	Hutchinson & Son	
Ultramarine—			
Rotterdam,	1 ck.	Hutchinson & Son	
Varnish—			
Antwerp,	5 brls.	T. F. Chambers & Co.	
Waste Salt—			
Hamburg,	507 bgs.		
White Lead—			
Rotterdam,	21 cks.	W. & C. L. Ringrose	
"	20	9 cs. Hutchinson & Son	
Wood Pulp—			
Hango,	327 bls.	J. Good & Sons	
Christiania,	966 pks.	Wilson, Sons, & Co., Ltd.	
Rotterdam,	143	Hutchinson & Son	
Zinc Oxide—			
Antwerp,	10 brls.	Wilson, Sons, & Co., Ltd.	

GLASGOW.

Week ending February 25th.

Acetate of Lime—			
New York,	494 bgs.		
Acetic Acid—			
Rotterdam,	10 balloons		
Albumen—			
Hamburg,	9 cs.		
Arachide Oil—			
Rotterdam,	1 ck.	J. Rankine & Son	
Barium Chlorate—			
Rotterdam,	6 cks.		
Barium Sulphate—			
Antwerp,	150 bgs.		
Barytes—			
Rotterdam,	40 cks.	J. Rankine & Son	
Castor Oil—			
Antwerp,	55 cks.		
Chemicals (otherwise undes.)—			
Rotterdam,	12 cks.	J. Rankine & Son	
Christiania,	20 kgs.		
Colours—			
Rotterdam,	2 cks.	J. Rankine & Son	
"	48 brls. 18 bxs.		
Cottonseed Oil—			
New York,	225 brls.		
Dyestuffs—			
Alizarine			
Rotterdam,	81 cks. 1 bx.		
Aniline			
Rotterdam,	20 cks.		
Hamburg,	13	3 cs.	
Argols			
Bordeaux,	34 cks.		
Cutch			
Rangoon,	1,949 bxs.	P. Henderson & Co.	
Fustic			
St. Lucia,	5 t. 15 c.	M'Arthur, Scott & Co.	
Logwood			
St. Lucia,	170 t. 5 c.	M'Arthur, Scott & Co.	
Grande Saline,	314		
Glucose			
New York,	965 brls.		
Glue—			
New York,	95 brls.		
Hamburg,	2 bgs.		
Manganese Chloride—			
Hamburg,	16 cks.		
Ochre—			
Rouen,	63 cks.		
Potash—			
Rouen,	9 cks.		
Rotterdam,	51		
Potassium Permanganate—			
Rotterdam,	2 cks.	J. Rankine & Son	
Rosin—			
Savannah,	3,600 brls.	W. N. Gemmell & Co.	
New York,	310		

Saltpetre—

Rotterdam,	32 cks.	J. Rankine & Son	
"	84 brls.		
Hamburg,	54	120 kgs.	
Soap—			
Marseilles,	7 cs.		
New York,	94 bxs.		
Starch—			
Portland,	30 bxs.		
New York,	400 bgs. 600 sks.		
Stearine—			
Antwerp,	25 bgs.		
Talc—			
Bordeaux,	10 bgs.		
Tallow—			
New York,	25 tcs.		
Tar—			
Christiania,	1 brl.		
Tar Waste—			
Rotterdam,	4 cks.		
Tartar—			
Bordeaux,	22 cks.		
Tartaric Acid—			
Rotterdam,	7 cks. 9 cs.		
Treacle—			
Drontheim,	54 cs.		
Philadelphia,	683 brls.		
New York,	50		
Varnish—			
Antwerp,	6 cks.		
New York,	1 bx. 24 brls. 2 hf. brls.		
White Lead—			
Rotterdam,	10 cks.		
Wood Pulp—			
Rotterdam,	179 pks.	J. Rankine & Son	
Christiania,	2,856 bls. 18 cs.		
Drontheim,	160		
Zinc Oxide—			
New York,	50 brls.		
Zinc White—			
Rotterdam,	5 cks.	J. Rankine & Son	

TYNE.

Week ending February 20th.

Barytes—			
Rotterdam,	134 bgs.	Tyne S. S. Co.	
Limestone—			
Antwerp,	9 crts.	Tyne S. S. Co.	
Paint—			
Antwerp,	3 cks.	Tyne S. S. Co.	
Phosphate—			
Antwerp,	200 t.	Langdale's Chemical M. Co.	
Dunkirk,	240		
Antwerp,	3 bgs.	Tyne S. S. Co.	
Pyrites—			
Huelva,	1,621 t.	Tharsis Sulphur & Copper Co.	
Quicksilver—			
Copenhagen,	100 cyllrs.		
Starch—			
Rotterdam,	80 cs.	Tyne S. S. Co.	
Wood Pulp—			
Christiania,	107 bls.		

GOOLE.

Week ending February 17th.

Acetic Acid—			
Rotterdam,	4 cs.		
Alizarine—			
Rotterdam,	48 cks.		
Alkali—			
Calais,	4 cks.		
Antimony—			
Boulogne,	2 cks.		
Barytes—			
Antwerp,	100 bgs.		
Caoutchouc—			
Boulogne,	15 cks.		
Chemicals (otherwise undescribed)			
Hamburg,	1 ck. 5 cs.		
Colours—			
Rotterdam,	2 cks.		
Hamburg,	49	4 cs.	
Dyestuffs (otherwise undescribed)			
Rotterdam,	258 cks. 35 cs. 3 lbs.		
Boulogne,	45	8	2 1/2 pks.
Farina—			
Harlingen,	50 bgs.		
Glucose—			
Calais,	200 bgs.		
Logwood—			
Jamaica,	470 t.		
Potash—			
Calais,	23 dms.		
Dunkirk,	21 cks.	24	
Antwerp,	20		
Pyrites—			
Huelva,	772 t.		
Soap—			
Boulogne,	2 cks.		
Starch—			
Ghent,	242 cs.		
Sulphuric Acid—			
Amsterdam,	18 dms.		

GRIMSBY.

Week ending February 20th.

Albumen—			
Hamburg,	10 cks.		
Caoutchouc—			
Hamburg,	2 cs.		
Chemicals (otherwise undescribed)			
Hamburg,	1 ck. 20 cbs.		
Rotterdam,	4		
Colours—			
Antwerp,	30 cks. 18 cs. 25 pks.		
Hamburg,	42	3	
Farina—			
Hamburg,	100 bgs.		
Indigo—			
Rotterdam,	8 pks.		
Pitch—			
Dieppey,	9 cks.		
Plumbago—			
Hamburg,	38 cks.		
Tallow—			
Hamburg,	50 cks.		

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending February 24th.

Acids—			
Bombay,	6 pks.	£11	
Alkali—			
Singapore,	3 c.	£7	
Ammonia—			
Shanghai,	3 c.	£20	
Algoa Bay,	10 cs.	15	
Ammonium Carbonate			
Bordeaux,	10 cks.	£18	
Hio,	2 t.	52	
Ammonium Chloride—			
Constantinople,	5 t. 10 c.	£123	
Trebiniole,	1	49	
Katarchi,	1	30	

Varna,	18	27	
Galatz,	2	10	70
Ammonium Sulphate—			
Valencia,	63 t.	£590	
St. Lucia,	20	10	160
Pecalangan,	213	10	7,808
Sourabaya,	705		5,640
Barbadoes,	40		390
Dunkirk,	116		928
Ostend,	100		800
Ghent,	150		7,400
Las Palmas,	27		152
Arsenic—			
Hio,	2 t.	£25	
Wanganui,	100 dms.	125	
Yokohama,	10 c.	13	
Bisulphite of Lime—			
Calcutta,	1 t. 16 c.	£34	

Bone Ash—			
Melbourne,	10 c.	£16	
Borax—			
E. London,	2 t. 40 kgs.	£86	
Calcium Phosphide—			
Bombay,	3 cs.	£27	
Carbolic Acid—			
E. London,	1 cs.	£5	
Barcelona,	25 dms.	200	
Melbourne,	5	5	
Shanghai,	20	5	
Hio,	50 cks.	163	
Yokohama,	50	172	
Calcutta,	2	5	
Caustic Soda—			
Sydney,	6 c.	£7	
Auckland,	5 t. 7	77	

Alexandretta,	6	5	10
Singapore,	1	7	1
Adelaide,	1	9	1
Brisbane,	16	2	10
Chemicals (otherwise undes.)—			
Melbourne,	7 cks.	£13	
Colombo,	6 pks.	12	
Madras,	6	12	
Calcutta,	2	10	
Yokohama,	20	10	
Rio de Janeiro,	1	10	
Lancaster, 1 kgs.	1	11	
Shanghai,	10	11	
Amsterdam,	1	11	
Rockhampton,	1	11	
Rotterdam,	10	15 dms. 15	
Rangoon,	2	25	

Paris, 4 18 78	Constantinople, 50	Dunedin, 220	Dunedin, 220
Cape Town, 3 18 1	Patras, 10 cs.	E. London, 1,077	Ghent, 12
Barcelona, 10 1 185	Phosphorus	Genoa, 295	Genoa, 85
Nantes, 21 6 3 379	Hio, 2 t. 15 c. 6715	Gibraltar, 200	Hamburg, 4
Ancona, 79 7 325	Osaka, 2 2 960	Guayaquil, 100	Havre, 75
Bari, 115 14 3 1,942	Yokohama, 1 5 165	Halifax, 200	Ibrail, 34
Bordeaux, 147 2 2,471	Kobe, 5 55	Havre, 50	Libau, 150
Trieste, 49 18 1 148	Vera Cruz, 5 55	Iquitos, 50	Melbourne, 20
Venice, 258 5 1 4,193	Potassium Carbonate	Karachi, 65	Nantes, 34
Leghorn, 69 11 1 1,144	Pernambuco, 1 t. 2 c. 628	La Guayra, 75	Nagasaki, 42
Genoa, 241 10 3 4,010	New York, 14 18 166	Las Palmas, 700	Mosel Bay, 30
Naples, 20 10 2 3,580	Boston, 9 5 166	Madras, 49	Naples, 50
Copperas	Potassium Chloride	Malta, 700	New York, 50
Natal, 10 c. 62	Bari, 2 t. 10 c. 624	Mauritius, 251	Rangoon, 12 bgs.
Constantinople, 3 t. 12 1 q. 7	Genoa, 1 33	New York, 190	Rotterdam, 100
Varna, 3 7 8	Passages, 5 165	Para, 200	Rosario, 20 pks. 11
Smyna, 4 16 2 8	San Francisco, 1 5 50	Penang, 30	St. John, N.B., 300
Cream of Tartar	Copenhagen, 3 13 100	Pt. Elizabeth, 650	Townsville, 20
Malta, 1 c. 65	Singapore, 1 38	Ponce, 25	Trieste, 10
Disinfectants	Libau, 5 108	Portland, Me., 4 bds. 1	Valencia, 46
Cape Town, 2 c. 66	Gothenburg, 8 288	Rotterdam, 100	Valparaiso, 20
Guanos	Vigo, 6 12	St. Lucia, 230	Sodium Bichromate
Demerara, 99 t. 8 c. 3 q. 6,900	Oporto, 1 5 41	St. John, N.B., 201	Rouen, 25 cks.
Malaga, 10 85	New York, 10 330	St. Thomas, W.I., 1	Sodium Hyposulphite
Almeria, 6 19 51	Reval, 15 450	Salt Pond, 50	Callao, 30 kgs.
Santa Cruz de	Sydney, 3 10 122	Salonica, 24	Sodium Silicate
Teneriffe, 8 3 24	Hio, 47 10 1,543	Samarang, 2	Leghorn, 10 cks.
Iron Oxide	Potassium Silicate	Santa Cruz De	Lisbon, 166
Havre, 10 t. 14 c. 683	Amsterdam, 1 t. 5 c. 610	La Palma, 224	Melbourne, 60 bgs.
Magnesia	Salt	Savanna, 3,000	Newcastle, 14 dms.
Havre, 105 cs.	Accra, 7 t. 10 c.	Shanghai, 3,000	Piraeus, 16
New York, 10 20 cks.	Algoa Bay, 7 7	Sierra Leone, 220	Tripoli, B., 21
Coquimbo, 1 c. 3 q. 67	Antwerp, 320	Singapore, 392	Valencia, 48
Magnesite	Baltimore, 771	Talcuano, 1	Vera Cruz, 10
Boston, 50 t. 11 c. 1 q. 686	Belize, 129 5	Tientsin, 4	Vigo, 20 brls.
Magnesium Chloride	Bilbao, 1 11	Teneriffe, 949	Starch
Nantes, 10 t. 630	Boston, 300 14	Trinidad, 1,600	Copenhagen, 100 cks.
Genoa, 7 8 c. 18	B. Ayres, 78 9	Valparaiso, 13	Lisbon, 4
Magnesium Sulphate	Buguma, 27	Victoria, B. C., 50	Rio de Janeiro, 206 bls.
Boston, 1 t. 3 c. 1 q. 660	Cameroons, 161 11	Wellington, 500	Sulphur
Manure	Cape Coast, 10 6	Alicante, 50 brls.	Pernambuco, 1 t. 8 c. 24
Rochefort, 5 t. 2 q. 628	Christiania, 11 6	Barcelona, 120	M. Video, 1 7
Cherbourg, 9 c. 3 3	Dunedin, 164 5	Corfu, 40	Boston, 25 1
Bordeaux, 10 1 55	E. London, 8 18	Genoa, 98	Superphosphates
Las Palmas, 17 80	Egwanga, 3 3	Leghorn, 57	Valencia, 50 t.
Oxalic Acid	Fernando Po, 50 5	Lisbon, 40	Nantes, 75 1 c. 2 q.
Coquimbo, 1 c. 63	Faroe Islands, 200	Odessa, 380	Rochefort, 370 2
Boston, 18 t. 15 680	Fuca, 20	Philadelphia, 15 dms.	Havre, 250 1
Vancouver, 5 3 q. 10	Ghent, 100	Seville, 50	Cherbourg, 397 18 3
Konigsberg, 7 1 10	Guayaquil, 10 10	Smyna, 70	Bordeaux, 287 6 2
Paint	Lagos, 166 7 23 cks.	Sydney, 37	Bilbao, 2 1
Alexandria, 355 kgs.	M. Video, 5 11	Soda Ash	Las Palmas, 4
Algoa Bay, 3 cks.	Mussera, 3	Antwerp, 504 bgs.	Barcelona, 30
Bahia, 4	Newcastle, 92 17	Baltimore, 800	Tarragona, 20 1
Bahia Blanca, 19	New York, 101 14	Barcelona, 17 cks.	Arucas, 5
Bombay, 5 cs.	Old Calabar, 220 6	Bari, 200	Tartaric Acid
Bordeaux, 1	Opobo, 130 7	Boston, 1,548 27 tcs. 73	Callao, 1 c.
B. Ayres, 28	Para, 100 12	B. Ayres, 50 brls. 21	Coquimbo, 2 1 q.
Calcutta, 86 dms. 24 5	Pernambuco, 12	Christiania, 400	Tin Crystals
Cape Haiten, 3	Portland, Me., 249	Corfu, 50	Trinidad, 1 t. 9 c. 1 q.
Casablanca, 91	Porto Novo, 25	Flume, 100	Yarnish
Colon, 10	St. John, N.B., 165	Ghent, 2	Alexandria, 2 cs.
Coquimbo, 40	San Fernando, 17 17	Genoa, 300	Algoa Bay, 10
Halifax, 16 dms. 4	San Francisco, 864	Gothenburg, 240	Bahia Blanca, 50 dms.
Hamburg, 4 12 2	Sapeli, 5	Hio, 408	Boston, 12 6
Havana, 5 25	Savannah, 600	Melbourne, 80	Cadiz, 12
Hong Kong, 54 dms.	Sherbro, 20	Naples, 55	Cape Town, 5
Lagos, 60	Sierra Leone, 200	Newport News, 84 tcs. 24	Ceara, 2
Mannos, 14	Sydney, 220	Patras, 10 brls.	Constantinople, 11 pks.
Manila, 10 brls 3 500 650	Trinidad, 36 14	Rio de Janeiro, 50 dms. 15	Leghorn, 7 cks.
Maranham, 6	Vancouver, 90 3	Rosario, 9	Santos, 3
Marseilles, 23 tins. 4	Wellington, 204 5	Smyna, 10 9	Seville, 6 1
New York, 4 80 20	Warri, 5	Trinidad, 2	Sulina, 1
Old Calabar, 20	Salt Cake	Zante, 384	Waste Salt
Para, 4 brls. 22	Baltimore, 171 t. 4 c. 6297	Soda Crystals	Reval, 10 t. 60
Pernambuco, 16	Saltpetre	B. Ayres, 34 brls.	White Lead
Piraeus, 2 brls. 15	Maranham, 2 t. 10 c. 1 q. 662	St. John, N.B., 40	St. Thomas, W.I., 20 kgs.
Port Natal, 140	Pernambuco, 3 14 3 80	Boston, 300 bgs. 179	Zinc Oxide
Rangoon, 20	Ceara, 8 1 6	Cape Town, 20 30	Ceara, 9 c. 19
Rio de Janeiro, 6	Soap	Pernambuco, 50	MANCHESTER
St. Domingo, 2	Accra, 100 bxs	Vera Cruz, 2 cks.	Week ending February 24
San Juan, 130	Algoa Bay, 2,222 50 brls. 1 bdle.	Sodium Acetate	Alum
Sierra Leone, 2 cs. 63 pks. 2	Ambrina, 1,000	B. Ayres, 125 kgs. 220 cks.	Larnaca, 15 brls.
Smyna, 100 kgs.	Antigua, 20 6	St. John, N.B., 40	Ammonium Chloride
Talcuano, 10	Antwerp, 5 1,812 cs.	Boston, 300 bgs.	Bussorah, 15 brls.
Tientsin, 110 40	Baltimore, 30	Cape Town, 20 30	Beirut, 3
Tuticorin, 12	Barbadoes, 1,605	Pernambuco, 50	Ammonium Sulphate
Valparaiso, 30 162	Belize, 275	Sodium Bicarbonate	Ghent, 420 bgs.
Vera Cruz, 100 4 brls.	Bombay, 10	Aalborg, 5 kgs. 4 cks.	Aniline Colours
Wellington, 5 113 80 168 pks.	Boston, 590	Aarhus, 5 kgs. 5	Hamburg, 8 kgs. 3 cs. 100
Painters Colours	Auckland, 300	Aleppo, 8 brls.	Rotterdam, 5 7
Accra, 51 kgs.	B. Ayres, 1,078	Alexandria, 70	
Alexandria, 5 cks. 60	Callao, 508 bds. 50	Algoa Bay, 20	
Baltimore, 87	Cameroons, 203	Ancona, 70	
Barbadoes, 3	Cape Coast, 262	Antwerp, 70	
Bremen, 41	Cartagena, 4	Barcelona, 145	
B. Ayres, 24	Cape Town, 1,350	Bari, 105	
Oporto, 67	Christchurch, 300	Batavia, 15	
Rotterdam, 100 bgs.	Christiania, 285	Bombay, 20	
Seville, 20 brls.	Constantinople, 115	Bordeaux, 123	
Paraffin Wax	Delagoa Bay, 275	Cartagena, Sp., 30	
Ancona, 50 bgs.	Demerara, 1,665	Cape Town, 24	
ari, 20	Dominica, 35	Christiania, 100	
		Copenhagen, 20	

ene—	
am, 26 cks.	
am, 17 dms.	
Carbide—	
1 dm.	
ouc—	
4 hrs. 1 cs.	
Soda—	
45 dms.	
als (otherwise undescribed)	
am, 5 cks.	10 kgs.
ria, 40	
2	
1	
Sulphate—	
retta, 10 cks.	
eed Oil—	
90 brls.	
115	
22 sks.	
6 cks.	
ylamine—	
am, 28 cks.	
14	
's Colours—	
ria, 115 cks.	
3	
870 t.	
1, 167 c.	
2 cks.	30 dms.
1	15 bxs.
50 brls.	
ystals—	
19 brls.	
Bica bonate—	
13 brls.	
334 bgs.	
3 cks.	
4 cks.	
75 cks.	10 dms.
5 kgs.	

HULL.

Week ending February 20th.

2 cks.	
ium Sulphate—	
329 bgs.	
500	
980	
ale (otherwise undescribed)	
rdam, 20 pks.	
4 cks. 2 cs.	
6	
ania, 20	
hagen, 2 6	
rk, 1	
nburg, 20 5	
urg, 144 10	
sberg, 4 6	
8	
ork, 3 68 bgs.	
40 10	
eed Oil—	
rdam, 1,593 c.	
erp, 1,255	
ania, 17	
hagen, 68	
rk, 21	
urg, 748	
illes, 7,505	
h, 1,120	
rdam, 507	
uffs (otherwise undescribed)	
ania, 25 bgs.	
urg, 2 cks.	
1	
ork, 28 cks.	

Guano—	
Dunkirk, 100 t.	
Linseed Oil—	
Bergen, 36 c.	
Christiania, 300	
Christiansund, 59	
Christiansand, 84	
Drontheim, 89	
Hamburg, 748	
Rotterdam, 166	
Manganese—	
Hango, 288 ingots	
Manure—	
Dunkirk, 50 t.	
Mineral White—	
Amsterdam, 90 bgs.	
Naphtha—	
Copenhagen, 4 dms.	
Ochre—	
Dunkirk, 7 cks.	
Hamburg, 1	
Painters' Colours—	
Antwerp, 21 cks. 6 cs.	
Bremen, 1	
Christiania, 2	
Drontheim, 10	
Gothenburg, 6 1	
Ghent, 7 1	
Hango, 10	
Hamburg, 8 1	
Libau, 33	
Naples, 6	
New York, 147 67 pks.	
Rotterdam, 1	
Pitch—	
Antwerp, 413 t.	
Copenhagen, 1 cs.	
Leghorn, 89	
Rotterdam, 10 cks.	
Soap—	
Bergen, 1 cs.	
Christiania, 2	
Tallow—	
Dunkirk, 15 cks.	
Hango, 76	
Tar—	
Copenhagen, 10 cks.	
Dunkirk, 50	
Genoa, 6	
Hamburg, 50	
Marseilles, 40	
Rotterdam, 32	
Selzeate, 120 t.	
Varnish—	
Copenhagen, 1 ck.	
Hamburg, 6	
Libau, 1 cs	
Marseilles, 3	
Antwerp, 1 3	
Whiting—	
New York, 29 cks.	

GLASGOW.

Week ending February 25th.

Ammonium Sulphate—	
Lisbon, 5 t. 1 3/4 c.	
Antwerp, 19 12	
Callera, 93 15 3/4	
New York, 25 1	
Valencia, 121 9 1/2	
Rotterdam, 30	
Bleaching Powder—	
Calcutta, 56 t. 16 c.	
Melbourne, 20	
Boracic Acid—	£29
Barcelona, 49	
Castor Oil—	
Adelaide, 13 c.	
Caustic Soda—	
Calcutta, 22 t.	
Chloroform—	
Adelaide, 445	
Coal Products—	
Aniline Colours	£336
U.S.A., 4640	
Croosote Oil	£640
Lisbon, 1	
Pitch	£54
Antwerp, 700 t.	
U.S.A., 425	
Tar	40
Calcutta, 181	
Madras, 181	
U.S.A., 465	
Tar Acids	
U.S.A., 14 c.	
Tar Oil	
Hamburg, 14 c.	

Coal Products (otherwise undes.)—	
Rotterdam, £304	
Dextrine—	
U.S.A., £36	
Dyestuffs (otherwise undescribed)	£619
Lisbon, 21	
Victoria, 66	
Barcelona, 150 105.	
Spain, 150 105.	
Extracts—	
Barcelona, £284	
Gelatine—	
Canada, £72	
Infusorial Earth—	
Singapore, £37. 105.	
Iodine—	
Rotterdam, £1,010	
Lead Acetate—	
Calcutta, £25	
Lead Nitrate—	
Canada, £175	
Linseed Oil—	
Melbourne, 1 t. 4 1/4 c.	
B. Ayres, 2 9 1/2	
Dunedin, 1 5 1/2	
Magnesium Sulphate—	
Christiania, £41	
Manganese Oxide—	
U.S.A., £124	
Manure—	
Kingston, 10 t.	
Ochre—	
Canada, £36. 155.	
Paint—	
Adelaide, £45	
Melbourne, qty.	
Brisbane, 129	
Calcutta, 479	
Colombo, 65	
Pain ers' Colours—	
Calcutta, £185	
Sydney, qty.	
Brisbane, £29	
Cape Town, "	
Pt. Said, "	
Paraffin Wax—	
Lisbon, £60	
San Sebastian, 50	
Valencia, 81	
Rotterdam, 6 c.	
Barcelona, £210	
Potash Salts	
Jimenez, 3 t. 17 1/2 c.	
Potassium Bichromate—	
Melbourne, £90	
Barcelona, 496	
Calcutta, 20	
U.S.A., 1,198	
Rotterdam, 631	
Antwerp, 761	
Potassium Prussiate—	
Barcelona, £705	
Salt Cake	
Terneuzen, 253 t.	
Soap	
Lisbon, 2 t. 6 c	
St. Lucia, 1 12 1/4	
Sodium Bichromate—	
Barcelona, 4 t. 3 1/4 c.	
Antwerp, 1 12	
Barcelona, 21 19 1/2	£497
Starch—	
Lisbon, £46	
U.S.A., 30	
Rotterdam, 20	
Sulphuric Acid—	
Calcutta, £54	
Treacle—	
Christiania, 9 t. 15 c.	
Yarnish—	
Adelaide, £28	
Brisbane, 25	
Trieste, 31	
White Lead—	
Calcutta, £106	

TYNE.

Week ending February 20th.

Alkali—	
Amsterdam, 24 t. 7 c.	
Genoa, 8 5	
Ammonium Sulphate—	
Dunkirk, 48 t.	
Antimony—	
Rotterdam, 7 t.	

Antimony Fume—	
Rouen, 5 t. 17 c.	
Arsenic—	
Amsterdam, 14 c.	
Barium—	
Genoa, 5 t. 3 c.	
Rouen, 15 11	
Bleaching Powder—	
Antwerp, 5 t. 3 c.	
Amsterdam, 20	
Christiania, 21 13	
Bergen, 15 7	
Rotterdam, 28 10	
Copenhagen, 50 1	
Caustic Soda—	
Christiania, 10 t. 16 c.	
Genoa, 14 10	
Copenhagen, 5 16	
Litharge—	
Antwerp, 1 t. 4 c.	
Christiania, 2 14	
Magnesia—	
Genoa, 7 c.	
Paint—	
Antwerp, 2 t. 16 c.	
Soda—	
Antwerp, 4 t. 18 c.	
Amsterdam, 12 12	
Christiania, 5 3	
Genoa, 14 19	
Rotterdam, 20 4	
Aarhus, 5 17	
Sodium Sulphate—	
Antwerp, 50 t. 2 c.	
Sulphur—	
Christiania, 700 t.	
Saanesund, 150	
Antwerp, 6 1 c.	
White Lead—	
Christiania, 19 c.	
Zinc Ashes—	
Antwerp, 1 t. 3 c.	

GOOLE.

Week ending February 17th.

Benzol—	
Boulogne, 59 dms.	
Chemicals (otherwise undescribed)	
Amsterdam, 60 cks.	
Coal Products (otherwise undes.)—	
Antwerp, 14 cks.	
Amsterdam, 5 cs.	
Boulogne, 3 1 2 dms.	
Ghent, 2	
Rotterdam, 40 6	
Colours—	
Amsterdam, 3 cks. 300 bgs.	
Ghent, 2 pks.	
Boulogne, 4 cs.	
Dyestuffs (otherwise undescribed)	
Hamburg, 18 cks.	
Manure—	
Dunkirk, 298 bgs.	
Ghent, 230	
Pitch—	
Antwerp, 345 t.	

GRIMSBY.

Week ending February 20th.

Alkali—	
Rotterdam, 10 cs.	
Hamburg, 15	
Caoutchouc—	
Malmo, 4 pks.	
Chemicals (otherwise undescribed)	
Antwerp, 6 cks.	
Dieppe, 6 1 cs.	
Hamburg, 102	
Coal Products (otherwise undes.)—	
Antwerp, 61 t.	
Dieppe, 124 cks.	
Hamburg, 36	
Colours—	
Antwerp, 5 cs.	
Dieppe, 10 cks.	
Hamburg, 1	
Farina—	
Dieppe, 20 bgs.	
Soap—	
Dieppe, 14 cs.	

PRICES CURRENT.

WEDNESDAY, MARCH 31ST, 1897

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		Lime, Acetate (brown) (ex ship)	
Acetic, 25% and 40%	per cwt. 5/10½ & 8/9	(grey) (ex ship)	per ton 4 17 6
Glacial	" 40/-	Magnesium (ribbon and wire)	per oz. 0 2 1
Arsenic S.G., 2000°	" 1 4 0	Chloride (ex ship)	per ton 2 7 8
Fluoric	per lb. 0 0 3½	Carbonate	per cwt. 1 17 4
Muriatic (Tower Salts), 30° Tw.	per bottle 0 0 10	Calcined Magnesia	per ton. 9 0 0
(Cylinder), 30° Tw.	" 0 3 0	Sulphate (Epsom Salts)	per ton 2 15 8
Nitric 80° Tw.	per lb. 0 0 1½	Manganese, Sulphate	" 16 10 8
Nitrous	" 0 0 1½	Borate	per cwt. 2 10 0
Oxalic	nett. 0 0 3½	Ore, 70%	per ton 3 10 0
Phosphoric, 1750°	" 0 0 11½	Methylated Spirit, 61° O.P.	per gallon 0 1 8
Picric	" 0 0 11	Naphtha (Wood), Solvent	" 0 2 1
Sulphuric (fuming 50%)	per ton 15 10 0	" Miscible, 60° O.P.	" 0 2 1
(monohydrate)	" 5 10 0		
(Pyrites, 168°)	" 3 0 0	Oils:—	
" 150°	" 1 5 0	Cotton-seed	per ton 15 15 0
(free from arsenic, 145°)	" 1 7 6	Linseed	" 16 15 0
Sulphurous (solution) S.G. 1025	" 3 0 0	Petroleum, American	per gallon 0 0 1½
Tannic (pure)	per lb. 0 1 2½	Stearine	per ton 19 10 0
Tartaric	" 0 1 1	Phosphorus (yellow)	per lb. 0 2 1
Arsenic, white powdered	nett per ton 24 15 0	(red)	" 0 2 1
Alum (loose lump)	" 4 10 0	Potassium (metal)	per oz. 0 3 7
Alumina Sulphate (pure)	" 4 2 6	Bichromate	per lb. 0 0 4½
Aluminoferic	" 2 5 0	Carbonate, 90% (ex ship)	per ton 17 10 0
Aluminium (Ingot metal 98/99¾%)	nett per cwt. 7 17 6	Chlorate	per lb. 0 0 4
Ammonia, Anhydrous	per lb. 0 1 3	Cyanide, 98%	" 0 0 11
" 880=28° B.	" 0 0 2½	Hydrate (Caustic Potash) 90%	per ton 24 5 0
" =24° B.	" 0 0 1½	(Caustic Potash) 75/80%	" 20 10 0
Carbonate	nett. 0 0 3	(Caustic Potash) 70/75%	" 20 0 0
Muriate	per ton 18 15 0	Nitrate (refined)	per cwt. 1 1 6
(sal-ammoniac) 1st & 2nd	per cwt. 35/- & 33/-	Permanganate	per cwt. 3 17 6
Nitrate	per ton 33 0 0	Prussiate Yellow	per lb. 0 0 5½
Phosphate	per lb. 0 0 4½	Sulphate, 90% (ex ship)	per ton 9 15 0
Sulphate (grey) London	per ton 8 0 0	Muriate, 80% (do.)	" 8 10 0
(grey) Hull	" 8 0 0	Silver (metal)	per oz. 0 2 5½
Aniline Oil (pure)	per lb. 0 0 9	Sodium (metal)	per lb. 0 2 1
Aniline Salt	" 0 0 8½	Carb. (refined Soda-ash) 48%	per ton 4 15 0
Antimony	per ton 31 5 0	(Caustic Soda-ash) 48%	" 4 5 0
(tartar emetic)	per lb. 0 0 9	(Carb. Soda-ash) 48%	" 4 0 0
(golden sulphide)	" 0 0 10	(Alkali) 58%	" 3 10 0
Barium Chloride	per ton 6 17 6	(Soda Crystals)	" 2 0 0
Carbonate (native)	" 3 10 0	Acetate (ex-ship)	" 13 15 0
Sulphate (native levigated)	" 42/6 to 65/-	Arseniate, 45%	" 15 0 0
Bleaching Powder, 35%	nett. 6 10 0	Chlorate	per lb. 0 0 5
Lignor, 7%	" 3 10 0	Borate (Borax)	net, per ton. 18 0 0
Bisulphide of Carbon	" 13 10 0	Bichromate	per lb. 0 0 1½
Chromium Acetate (crystal)	per lb. 0 0 6	Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	" 9 3 0
Calcium Chloride	per ton 2 2 6	(74% Caustic Soda)	" 8 2 0
China Clay (at Runcorn) in bulk	" 15/- to 30/-	(70% Caustic Soda)	" 7 2 0
Coal Tar Products and Dyes:—		(60% Caustic Soda)	" 6 2 0
Alizarine (artificial) 20%	nett per lb. 0 0 7	(pure liquor 90° Tw.)	" 3 15 0
Magenta	" 0 3 4	77/78% powdered (99% hydrate)	" 13 10 0
Anthracene, 30% A, f.o.b. London	per unit per cwt. 0 0 8	Bicarbonate	" 6 10 0
Benzol, 90's	per gallon 0 3 0	Hypsulphite	" 5 5 0
50/90	" 0 2 9	Manganate, 25%	" 15 0 0
Carbolic Acid (crude 60°)	per gallon 0 2 4	Nitrate (95%) ex-ship Liverpool	per cwt. 0 8 1½
(crystallised 40°)	per lb. 0 0 7½	Nitrite, 98%	per ton 30 0 0
(liquid 95/97%)	per gallon 0 0 1½	Phosphate	" 12 10 0
Creosote (ordinary)	" 0 0 2	Silicate (glass)	per ton 4 10 0
(filtered for Lucigen light)	" 0 2 ½	(liquid, 100° Tw.)	" 3 10 0
Crude Naphtha 30% @ 120° C.	" 0 1 1	Stannate, 40%	per cwt. 1 2 6
Grease Oils, 22° Tw.	per ton 2 15 0	Sulphate (Salt-cake)	per ton. 0 19 0
Pitch, f.o.b. Liverpool or Garston	" 1 3 0	(Glauber's Salts)	" 1 7 6
Solvent Naphtha, 90% at 160°	per gallon 0 1 7½	Sulphide	" 6 15 0
Copper	per ton 51 0 0	Sulphite	" 5 0 0
Sulphate	" 19 5 0	Strontium Hydrate, 100%	" 3 0 0
Oxide (copper scales)	" 44 10 0	Sulphocyanide Ammonium, 95%	per lb. 0 0 6½
Glycerine (crude)	" 37 10 0	Barium, 95%	" 0 0 4½
(distilled S.G. 1250°)	" 70 0 0	Potassium	" 0 0 0½
Iodine	nett, per oz. 0 0 9	Sulphur (Flowers)	per ton. 7 10 0
Iron Sulphate (copperas)	per ton 1 10 0	(Roll Brimstone)	" 6 10 0
Sulphide (antimony slag)	" 2 0 0	Brimstone: Best Quality	" 4 15 0
Lead (sheet) for cash	" 12 15 0	Superphosphate of Lime (26%	" 7 15 0
Litharge Flake (ex ship)	" 14 15 0	Tallow	" 18 0 0
Acetate (white)	" 23 0 0	Tin Crystals	per lb. 0 0 4½
(brown)	" 15 10 0	English Ingots	per ton 65 0 0
Carbonate (white lead) pure	" 16 15 0	Zinc Spelter	" 17 10 0
Nitrate	" 19 0 0	Chloride (solution, 100° Tw.)	" 2 0 0

AND
OIL, PAINT and COLOUR REVIEW.

512.

Vol. XX.

EMPLOYERS' LIABILITY.

AND TITLE PAGE OF VOL. XIX.

DVERTISEMENTS.

TENDER.

TO CHEMICAL MANUFACTURERS.

ices, Alfington, March 11th, 1897.

"Expert, Manchester."

Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday**

In the event, however, of injury caused through the neglect of an employer, the injured workman, if he so desire, may forego his rights under an agreement, and pursue his remedy against his employer as if this Act had not passed.

This last provision, it will be seen, might under certain circumstances quite undo the employer and render void the end and object of the making of the agreement.

Now, although, as we have pointed out, the adoption of a specific agreement may tend to limit the liability under the contracting-out clause, it remains to be seen on what lines the agreement must be drawn, as these are detailed in the schedule to the Bill.

In the following conditions wilful negligence is invariably to be construed as a bar to compensation, otherwise the scale of compensation is graduated in the following manner. In the case of death or permanent total disablement, the compensation is to be the equivalent of three years' wages, based on the current wages and emoluments; or for the six months preceding the accident in the case of daily or piece wages.

When partial permanent disablement has resulted, the amount shall not exceed one half, while with temporary disablement, provided a fortnight has intervened, the amount shall be not more than two-thirds for the first three months, and not more than half for any subsequent period. A medical certificate of efficiency or the refusal to be examined voids the continuation of the claim.

Compensation can be paid in a lump sum, or in weekly installments, which are limited in number to 52. If no request as to the nature of the payment is made, the employer can pay it in a lump sum. In any case of temporary disablement the claim lapses after 18 months, reckoned from the end of the first 14 days after the accident.

Lastly, attention should be paid to the definition of the degrees of injury. Total disablement means the loss of sight, two legs, or two arms, and includes, of course, any other undefined mishap which renders it impossible for the injured man to earn wages at his former employment. Partial disablement covers the loss of one eye, leg, arm, or hand, and also the same general proviso, only as applied to the earning of full wages. Temporary disablement means an injury that hinders a man from earning a wage, or even his full wages, during a period of more than a fortnight. It is also in regard to the latter class of injury the 18 months' limit applies. The Bill is known as the Injuries to Workmen Act, 1897, and the introducers, Sir A. Forwood, Mr. Warr, Mr. Tomlinson, and Sir E. Hill, propose that it shall come into force on July 1st, 1898.

SOCIETY OF CHEMICAL INDUSTRY.

LIVERPOOL SECTION.

THE meeting of this section was held last week, when Dr. G. Schack-Sommer read his paper on micro-organisms and their action, as already announced. The chair was taken by Dr. Kohn.

The lecturer said that micro-organisms were divided into three classes, namely, bacteria, yeasts, and moulds, all of which played an important part in pathology, as well as in many chemical industries. The aim, therefore, of the manufacturer whose industry was affected by these organisms should be directed towards promoting the increase of the beneficent ones and destroying those that were harmful. Quite a number of chemical compounds which it had been impossible hitherto to produce, have been manufactured by the help of micro-organisms. Dr. Alfred Koelliker, proprietor of the firm of Dr. L. Marquart, near Bonn, had made pure cultivations serve him in preparing some of the pharmaceutical preparations sold by them. He (the speaker) understood that Dr. Koelliker ferments sugar solutions at 140° F. with a pure cultivation of lactic ferment. The lactic acid while being formed was neutralised by adding lime or chalk during the fermentation. The lime lactate was purified by frequent recrystallisation, and was then either sold as such, or used for making lactic acid or ferrous lactate. Colours for eatables, and confectionery goods were now prepared with pure cultures of bacteria on rice, a process which the Chinese had known for years. For the preparation of a liquid glue for photography, photo-lithography, &c., gelatine or other nitrogenous substances were

peptonised with bacteria, such as *bacillus prodigiosus*. It was a well-known fact that in butter making, pure-culture bacteria were used for inoculating the cream for the purpose of making good butter. Bacteria favourable to this purpose are already in the market, three different ones being now used in this country, the result being that the butter-maker can depend with more certainty on the product. For the manufacture of cheese the proper selection of bacteria was of still greater importance than in the case of butter. These bacteria were of great importance in the case of those in which fermentation plays a most important part, and these were divided into three classes. The first class included brewing and distilling, and the manufacture of wine. In the first-named class fermentation started artificially, whereas in the second the grape juice fermented without any addition. Brewers had learned from experience that the same raw material they might get products with different qualities, and they had known for a long time that it was advantageous to have a fresh supply of yeast from breweries which produced a notably well-flavoured beer. In the same way, distillers had learned that the yield of alcohol from a given raw material might vary several per cent. These differences were shown to be due to the quality and variety of the species of yeast used. Methods had been arranged by which the yeast varieties were distinguished, and by which the most suitable could be picked. As a consequence certain establishments had adopted the pure culture yeast, and rearing of special varieties in their work, and the largest and most scientifically and intelligently conducted breweries worked with these pure culture yeasts, with the very best results. In distilling the same experience had been gained. Preference was now given to pure yeast varieties which gave a high yield of alcohol, and pure yeast were made accordingly. Experiments had been tried with the use of the choicest wines on other raw products, such as beer. Besides the scientific value of those experiments, they produced a successful, a new field of industry, namely, the manufacture of wine similar to wine in countries where the grape does not grow, but too, which, while containing a larger percentage of nourishing properties, rivalled in flavour and excellence many of the best wines of southern climes. Among others who had experienced this direction was Dr. Sauer, who actually succeeded in producing a beverage mentioned. Dr. Sauer chooses his malt according to the character of the wine he wishes to represent, and prepares his malt in the same way as is done in every brewery. The wort used in brewing beer was, as a rule, somewhat acid, yet reached more than 0.1, and even that quantity was undesirable in the manufacture of beer. In the case of making Dr. Sauer's malt the desired effect was brought about by adding a carefully prepared lactic acid ferment. This was allowed to act on the malt-wort up to 122° F. for twenty-four hours, in which time it was changed 0.6 per cent. to one per cent. of the wort and produced lactic acid required. It was then pasteurised, or heated to 167° F., and so the lactic ferment was destroyed. At this point it was necessary to cool the hot wort down to the proper temperature, was 77° F., and then add a purely raised wine yeast, to fermentation; the yeasts being made in accordance with the kind of malt wine desired. The wine to begin with was akin to the mode of manufacture being identical. Its ingredients were such a nature as to allow of malt wine being classed for excise. The lecturer submitted specimens of Dr. Sauer's port, sherry, tokay, which did not betray the slightest taste of malt and were free from any peculiar non-vinous flavour, and no malt odour was detected.

At the conclusion of the lecture a discussion took place, the part being Dr. Hurter, Professor Boyce, and Messrs Masp and Bateson. A vote of thanks to Dr. Schack-Sommer concluded the proceedings.

MANCHESTER SECTION.

The usual monthly meeting of this Section was held at the Hotel, Manchester, on Friday, 5th inst, the chairman, Mr. G. Davis, presiding. A further reference was made by Mr. Powell to the publication of an unread paper *vice* Dr. Stevenson Macadam which was read and discussed. The chairman said he was most responsible for the paper appearing. He was led to understand the meeting that the author of the unread paper wished it to be read, and so he sent it up for publication. Mr. Powell then proposed that this particular paper be discussed at the next meeting, and the proposition was carried unanimously.

In the absence of the writer, the hon. secretary then read a paper by Dr. A. Liebmann entitled "A contribution to the knowledge of nitro-aniline red." He described the results of investigation of which he claimed to have discovered that the presence of alpha-naphthol in beta-naphthol is deleterious to the production of good para-nitro-aniline red. He had also, he said, discovered a method which could be easily carried out, for the estimation of alpha-

aphthol, and a method for the estimation of meta-nitro-aniline. For which latter method, however, he found there was no necessity, as commercial para-nitro-anilines were chemically pure products.

describing the new test the author referred to the existing test which is usually employed to detect alpha-naphthol, and for particulars of which he was indebted to Mr. n. The method of procedure was as follows:—Dissolve 2 beta-naphthol in a dry 200 c.c. flask, by the aid of 10 c.c. of Then add 5 c.c. of FeCl_3 solution (50 grams to litre), and for two minutes add 40 c.c. of water. A precipitate forms g, which should be quite white if pure, but is coloured violet aphthol is present. The new test devised by Dr. Liebmann was 144 milligrams of beta-naphthol in a mixture of 5 c.c. alcohol and toluene. In another tube 0.14 grams of para-nitro-aniline in 9 c.c. of dilute HCl, cooled and diazotised with 1 c.c. of HNO_2 solution. One c.c. of this is then added to the solution aphthol, and well shaken. Water is added, forming two layers, separated, and the toluene solution shaken with 5 c.c. of H_2O . The colour so formed is compared with that produced with beta-naphthol containing known quantities of alpha-naphthol. The test is made quantitative. On the suggestion of Mr. n, the discussion of the paper was adjourned till next meeting. per on "The cause of luminosity of hydro-carbon flames," and Irwin continued his controversy with Professor Vivian the subject of the acetylene theory of luminosity. The paper a rather interesting conversation between the author, Dr. the Chairman, and a few other gentlemen, which, however, contribute materially to the question of the acetylene theory. ng concluded with the usual votes of thanks.

The Patent List.

ist is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

ents in Process of Tanning and Pickling. A. Stagg and L. 4,700. February 22.
re of Calcium Carbide. H. Walker. 4,721. February 22.
re of Nitrites. A. Knop. 4,747. February 22.
ents in Distilling and Rectifying Processes. E. Guillaume. February 23.
Sewage. W. J. Diddin. 5,005. February 24.
re of Magnesium. P. Dronier. 5,011. February 24.
g the Incrustation of Boilers. F. Berdal and V. Ducoulombier. February 25.
ting and Evaporating Apparatus. O. Hermann. 5,066. February 25.
Batteries. W. S. Squire. 5,102. February 25.
nsuming Apparatus. J. Kippax. 5,113. February 25.
ndensing Apparatus and Disinfectant Producer. S. J. Farns. 5,120. February 26.
on of Coke Ovens. F. A. E. Samuelson. 5,122. February 26.
Iodine in Mineral Oils. H. H. Lake. 5,256. February 26.
rom Aniline Waste Product. C. R. Lindsey. 5,289. February 27.
ng Gypsum for Commercial Use. T. Parker. 5,290. February 27.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

bstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

ents in or Relating to Saturators for Use in the Manufacture phate of Ammonia. P. Duggan, 25, Pier-road, Rosherville, Kent. at. 5,011. March 5, 1896.

ttom of the saturator is of conical shape, terminating in a e operated by a spindle passing up through the saturator. ost end is tapped, and, engaging with a bridge piece or n be raised or lowered by turning the hand wheel attached. of the conical bottom is connected by the plug valve with a pipe, into the right-angle bend of which the nozzle of an protrudes. The chief feature is that the injector is wholly and, being supplied direct with steam, the sulphate can, it is be raised on to a drainer 15 ft. above the level of the acid in tor. It can thus be discharged by gravity into the store. The is non-rotative. There is one drawing.

Improvements in the Manufacture of Nitrate of Ammonium and in Apparatus therefor. G. Craig, George-square Glasgow. Eng. Pat. 5,815. March 16, 1896.

Mixtures of sodium nitrate and ammonium sulphate are heated to effect double decomposition. The resulting mass is dried and kept agitated until cool, when a loose powder is formed. This is treated with anhydrous ammonia, which dissolves out the nitrate, leaving the admixed sulphates. The vessels must be constructed to withstand pressure, but the lower the temperature the lower the pressure. If ammonia of '880 sp. gr. is used, the pressure is lower, but the extracted nitrate is contaminated with sulphates. There is one drawing of the apparatus. The extracting vessels must be "barfied" or enamelled to resist the action of the ammonia, and they are fitted with false bottoms, through which the solution of nitrate filters and passes to a storing vessel. Any ammonia vapour is exhausted by a compressor and passed to a condenser, to be returned to the extractors. When the storing vessel is full, the ammonia is evaporated and the nitrate recovered. Use is also made of the cold generated in the store tank to condense the ammonia.

Improvements in Peroxide of Manganese and Carbon Electrodes, and in the Method of Producing the same. A. Heil, Frankisch Crumbach, Hesse, Germany. Eng. Pat. 29,307. December 21, 1896.

The carbon manganese electrode is partly chlorinated, and by the treatment is said to be suitable for use in secondary as well as primary batteries. The action is explained thus. In a Leclanché cell the zinc joins with the chlorine from the salammoniac to form chloride, and the hydrogen is oxidized by the manganese oxide. But the nitrogen present in solution combines with some of the hydrogen to form ammonia. Part of this escapes, and part precipitates hydrated zinc oxide. The new carbons of manganese and carbon are first chlorinated by a separate current in an electrolyte free from nitrogen. Then when used in the usual way the chlorine extracted by the zinc is replaced with that from the manganese-carbon electrode, and the formation of the objectionable zinc hydrate and ammonia is avoided. The hydrogen also combines with some of the chlorine, and would thus fix any ammonia as salammoniac should by any chance ammonia be formed.

Improvements in the Treatment of Apatite and other Mineral Phosphates, and Manufacture therefrom of Products suitable for Fertilizing Purposes. J. G. Wiborg, Kungstensgatan 17, Stockholm. Eng. Pat. 2,673. February 5, 1896.

The apatite is pulverised and mixed with carbonate of soda or potash (or the caustic compounds), and heated in an oven to a red or yellow heat, when tetro-calcium phosphate, or the corresponding potash salt, is formed. Three molecules of carbonate of soda are required to one of apatite. If the latter contains fieldspar, or is rich in silicic acid, one molecule of fieldspar requires two molecules of carbonate; in other words, from 20% to 30% of carbonate is required. The resulting product is insoluble in water, but dissolves in ammonium citrate solution.

Improvements in the Manufacture of White Lead Pigment and in the Separation of Metallic Lead from Lead Sulphide. A. Macdonald, 13, Ladbroke-grove, Notting Hill, London. Eng. Pat. 25,133. November 9, 1896.

This is a modification of Patents 2,883 and 11,972 of 1893. A jet of air and steam is directed on to, but not into, fused galena or other lead sulphide. Basic lead sulphate suitable for a pigment is given off and collected. A quantity of metallic lead is set free, and carries with it all the silver in the ore. The sulphur dioxide which is simultaneously evolved can be utilized. The composition of the basic sulphate is constant, and is represented by the formula $2\text{PbSO}_4 + \text{PbO}$.

Composition for Disinfecting Sewage Matter and Rendering it Available for Agricultural and Fertilizing Purposes. P. O'Dowd, Falduff Lodge, Westport, Ireland. Eng. Pat. 5,381. March 18, 1896.

A mixture of 90 to 95 parts of peat charcoal and 5 to 10 parts of ferrous sulphate are added to the sewage in an ordinary intercepting tank, or in the improved tank described in Patent 8,877/95, where it is distributed in layers on perforated trays.

SCARCITY OF CASTOR OIL.—Messrs. Fuerst Bros. advise us that, as it has been currently reported that the French Government have now definitely prohibited the landing of castor seed coming from India, it may be of interest to readers to know that this does not in any way affect the landing of seed at Antwerp, where their works are situated. The present scarcity of seed and famine prices at Marseilles are thus not likely to affect in any way the ever-increasing consumption of castor oil, as the large stocks fortunately held by their manufacturers, and the favourable position of the port of Antwerp, enable them to bring supplies to England within twenty-four hours.

Reports of Companies.

PRICE'S PATENT CANDLE COMPANY, LTD.

THIS company reports that no unusual incident in connection with the candlemaking industry of the United Kingdom occurred during the year 1896. The Candle Makers' Association was not revived, and competition for business at low rates of profit continued severe; the company's trade, however, increased somewhat in volume, and the profit was larger by about £1,000. than that of 1895. The profit for 1896 amounted to £83,967. 14s., as compared with £82,858. 19s. in 1895 and £69,594. 10s. 11d. in 1894. Adding to the profit of 1896 the £8,264. 5s. 7d. brought forward from 1895, together with £92,231. 19s. 7d., there remained at the close of the year and after deducting the dividend of 16s. per share, amounting to £30,000., paid in September last, a disposable sum of £62,231. 19s. 7d. The directors recommend that out of this sum £12,500. be, as usual, written off for depreciation of fixed properties and plant; that £32,812. 10s. be applied in paying, on the 13th inst., a dividend of 17s. 6d. per share, making with the September dividend £1. 13s. 6d. per share, as against £1. 12s. 6d. per share for 1895 and £1. 7s. 6d. for 1894; the adding of £10,000. to the reserve fund, which will thus be raised to £35,000.; and the carrying forward to 1897 of £6,919. 9s. 7d. The company's invested money amounts to £217,573. 13s. 3d. Of this sum £136,864. 8s. 3d. represents the aggregate amount of six funds, namely—Unclaimed dividends, the savings bank, the general insurance, the pension, the accident, and the reserve funds respectively. The works were as usual kept in thorough repair. Prices of raw materials have been, and are, unprecedentedly low, with the result that there has been a greater consumption of the cheapest goods manufactured by the company, consumption, as a rule, increasing as prices decline. It has thus happened that while the profit margin on the paraffin wax candles has been greatly reduced by competition, increased trade has assisted in maintaining the gross profits. Mr. Wilson, Mr. Pearce, and Mr. Calderwood are the directors, and Mr. Bourdas is the auditor, retiring by rotation, and they offer themselves for re-election.

THE SANITAS CO., LTD.

At the recent meeting of this company, the managing director, Mr. C. T. Kingzett, pointed out in reference to the trading of the past year that the conditions had not been favourable to the company's business, but, notwithstanding that, they had succeeded in making increased sales in every department. He was further glad to be able to point out to them that the increase in sales of disinfectants other than Sanitas showed a growth during the year of about 75 per cent. (Applause.) He thought that might be accepted as a good omen as to their being able to hold their own in the new field in which they had entered as strongly as they were doing in the old, although, of course, the trade they were developing did not give them the same profit as their own original proprietary manufactures. With regard to the scheme to which the chairman had referred, the new company would acquire the business of the Sanitas Company, Limited, as a going concern, and also the business of the American and Continental Company as a going concern. The new contracts with himself would wipe out all existing arrangements, and he thought if they could hit on a plan that would do no harm to anybody they might reasonably expect it would do good to all parties. With regard to himself, he did not hesitate to say that capitalizing his interests in the business would result in a loss to him in point of income. The only gain he should make would be that he would get his assets in a more liquid condition, more easy to deal with. Shareholders would be benefited, inasmuch as at the present time he was somewhat in the position of a debenture-holder, as he got his payment before shareholders got their dividend, but under the proposed arrangement that would cease to be the case. The board contemplated, if they were able to carry the scheme out, going in for the manufacture of a number of new articles altogether apart from disinfectants. However, all those things were tied up together, and until the board saw their way to elaborate a scheme which would meet all difficulties they could not go much further in the matter. In conclusion, he expressed his sense of appreciation of the efficient services rendered to the company by the heads of departments and the staff generally.

DIVIDEND.

MESSRS. LEVER BROS., LTD.—The directors of Lever Brothers, Ltd., have declared a dividend on preference shares at the rate of 5% per annum, and a dividend on ordinary shares at the rate of 10% per annum.

REPORTED NEW CHEMICAL WORKS.—The United Alkali Company, Limited, have, it is reported, acquired property for new works on the Thames.

RIVERS POLLUTION PREVENTION BILL.

(Concluded from p. 178.)

LOCAL AUTHORITIES.

16.—(1) In this Act the expression "local authority" means a County Council, also any joint committee or other representative constituted under this Act, or under section 14 of the Local Government Act, 1888, or under any other Act, for the purpose of the laws relating to the pollution of rivers:

Provided that (save as hereinafter mentioned) proceedings not be taken against any person under this Act while proceedings are pending against such person in respect of the same offence under any other Act, and proceedings shall not be taken against any person under any other Act while proceedings are pending against such person in respect of the same offence under this Act:

Nevertheless, if in any case the Local Government Board is of opinion, on the representation of the local authority or of any other person, that any proceedings pending under this Act or any other Act being prosecuted bona fide and with due diligence, they may authorise such other proceedings to be taken either under this Act or any other Act and either by the local authority or by any person having regard to all the circumstances of the case, the Local Government Board may think just.

(2) The expression "district," used in relation to a local authority, means the sanitary district, administrative county, or other area in which such authority has jurisdiction.

(3) A county council may, subject to the provisions of the Local Government Act, 1888, delegate to a committee or committee of the powers exercisable by them as a local authority under this Act.

17.—(1) The Local Government Board, by provisional order, may, on the application of the council of any of the counties or boroughs concerned, may constitute a joint committee or other body representing all the administrative counties and county boroughs through or by which a stream, or any specified portion of a stream, or any tributary thereof, passes, and may confer on such committee or body all the powers of a local authority under this Act, or such of them as may be specified in the order; and the order may contain provisions respecting the constitution and proceedings of the said committee or body as may seem proper, and may provide for the payment of the expenses of such committee or body by the administrative counties or boroughs represented by it, and for the audit of the accounts of such committee or body, and their officers.

(2) Sections two hundred and ninety-seven and two hundred and ninety-eight of the Public Health Act, 1875 (which relate to the making of provisional orders by the Local Government Board, for the purposes of this section, as if they were herein made and in terms made applicable thereto).

18.—(1) Every local authority shall, subject to the restrictions in this Act contained, have power to enforce the provisions of this Act in relation to any stream being within or passing through or by their district, and for that purpose to institute proceedings in respect of any offence against this Act affecting their district, whether the offence is committed within or without their district.

(2) Proceedings may also, subject to the restrictions in this Act, be instituted in respect of any offence against this Act committed by a person aggrieved by the commission of such offence.

(3) Any local authority shall have power to contribute towards the cost of any prosecution under this Act instituted by any other local authority.

19. For the better enforcement of the provisions of this Act, it shall be lawful for any officer or other person authorised by the local authority, to enter at any reasonable time on any land, manufactory, or building, for the purpose of taking and carrying away and to take and carry away samples of any effluent at the point at which it passes into any stream. Such officer or person shall leave at the premises whence the effluent flows a duplicate of every sample taken by him with the owner or occupier of the premises.

Any person who obstructs or molests any such officer or other person in the exercise of his powers shall be liable to a penalty not exceeding five pounds.

20.—The expenses incurred by a local authority in the execution of this Act shall be payable as follows:—

- (a.) In the case of a sanitary authority, as general expenses incurred in the execution of the Public Health Acts;
- (b.) In the case of a county council, as expenses incurred in the execution of the Local Government Act, 1888;
- (c.) In the case of a joint committee or other representative body, in manner directed by the order or Act constituting the committee or body:

Provided that the Local Government Board may, where the circumstances of the case make it just so to do, direct by a provisional order made under this Act or by an order made by the application of a county council, that any of the expenses

any council or joint committee in the execution of this Act payable as "special expenses" within the meaning of section 1 of the Local Government Act, 1888, and be leviable on the districts or parishes mentioned in the order.

penalties recovered under this Act by a local authority shall to the credit of the fund out of which the expenses incurred in the execution of this Act are directed to be paid.

MISCELLANEOUS.

withstanding anything in this Act contained, no person shall be deemed to have committed an offence against this Act or be liable in respect of this Act by reason or in consequence of any thing done into a stream in the same condition as that in which such thing has been drained or raised from any mine, pit, shaft, or quarry, or in consequence of any water flowing into a stream from any pit bank, or by reason or in consequence of any water which has passed through an efficient settling tank in connection with any coal washing machinery.

offences under this Act shall be deemed to be within the Act of Evidence in certain cases of Misdemeanour.

The powers conferred by this Act for enforcing the provisions of this Act shall not be deemed to prejudice or affect any other powers of a like nature vested in any person or persons by Act of Parliament, law or custom, and such other rights or powers may be exercised in the same manner as if this Act had not passed; and this Act shall legalise any act or default which would but for the passing of this Act be deemed to be a nuisance or otherwise contrary to law.

A local authority under this Act may take for the purposes of any proceedings at common law and otherwise for the suppression of a nuisance.

This Act shall not apply to or affect the lawful exercise of any right of rippling or diverting water.

Nothing done under this Act shall extend to, interfere with, abridge, or prejudicially affect any right, power, authority, or privilege given by the Thames Conservancy Acts, 1857 or by the Thames Navigation Act, 1866, or by the Humber Conservancy Acts, 1852 to 1876, or by the Lee Conservancy Act, 1868 or Acts extending or amending the said Acts or either of them, any outfall or other works of the London County Council (outside the county of London) executed under the Metropolitan Act, 1855, and the Acts amending or extending the same, or to interfere with, take away, abridge or prejudicially affect any right, power, authority, or privilege of the London Council, or any right, power, authority, jurisdiction, or privilege of the Mersey and Irwell Joint Committee Act, 1892, or the West Yorkshire Rivers Act, 1894.

The Conservancy Board constituted under the Lee Conservancy Act, 1868, shall, within the area of their jurisdiction, have the powers for the provisions of this Act which local authorities have under

the said Conservancy Board may also enforce the provisions of the said Conservancy Act, 1868, under the head or division "Protection of the River" by application to the court having jurisdiction in the place in which the offence is committed against those provisions, and such court order require any person to abstain from the commission of any offence, and the provisions of this Act with respect to orders of appeal therefrom shall apply accordingly.

Where any local authority or any urban or rural sanitary authority empowered or required by any Act of Parliament to carry any work to the sea or any tidal waters, nothing done by such authority in the execution of such enactment shall be deemed to be an offence against

the provisions of this Act, if not inconsistent with the context, the following provisions shall have the meanings herein-after respectively assigned to them, to-wit:

"Person" includes any local authority and any other body of persons whether corporate or unincorporate;

"Stream" includes the sea to such extent, and tidal waters to such extent as may, after local inquiry and on sanitary grounds, have been or may hereafter be determined by the Local Government Board, by order published in the London Gazette. Save as aforesaid, it includes rivers, streams, canals, lakes, and watercourses, other than watercourses at the passing of this Act mainly used as sewers, and emptying directly into the sea, or tidal waters which have not been determined to be streams within the meaning of this Act by such order as aforesaid:

"Solid matter" shall not include particles of matter in suspension in water;

"Polluting" shall not include innocuous discolouration;

"Sanitary authority" means—

within the administrative county of London, any local authority acting in the execution of the Public Health (London) Act, 1891;

(b) elsewhere in England, any urban or rural sanitary authority acting in the execution of the Public Health Act, 1875;

"County council" means the council of an administrative county established under the Local Government Act, 1888, and includes the council of a county borough.

30. The enactments set forth in the schedule to this Act are hereby repealed to the extent mentioned in such schedule. Provided that—

(i) any enactment or order referring to any Act or enactment hereby repealed shall be construed to refer to this Act, or to the corresponding enactment in this Act;

(ii) this appeal shall not affect—

(a) the past operation of any enactment hereby repealed, nor anything duly done or suffered under any enactment hereby repealed; or

(b) any right acquired or liability incurred under any such enactment; or

(c) any penalty incurred in respect of any offence committed against any such enactment; or

(d) any inquiry or legal proceeding now pending in respect of any such right, liability, or penalty as aforesaid; and any such inquiry and legal proceeding may be carried on as if this Act had not passed.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Washington, gives the following returns of the exports of petroleum and petroleum products for January, 1897. The total shipments were 61,006,006 gallons, compared with 77,686,921 gallons in 1896. The total for the seven months ending January, 1897, was 563,203,814 gallons, against 528,453,772 gallons during the same period in 1896. The details of the shipments are as follow:—

CRUDE PETROLEUM.		Gallons.
Total, Jan., 1897	.....	8,594,840
" " 1896	.....	6,159,996
NAPHTHAS.		
Total, Jan., 1897	.....	260,372
" " 1896	.....	1,572,677
ILLUMINATING.		
Total, Jan., 1897	.....	47,623,153
" " 1896	.....	65,724,101
LUBRICATING AND PARAFFIN.		
Total, Jan., 1897	.....	4,527,113
" " 1896	.....	4,186,803
RESIDUUM.		
Total, Jan., 1897	.....	588
" " 1896	.....	43,344

EXPORTS OF ALKALI AND BLEACH.

THE following returns, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries for the month of January, 1897, as compared with the same month of 1896:—

Port.	ALKALI.			
	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	£	£
Russia	7,894	3,506	2,687	1,161
Sweden and Norway	7,539	2,441	1,633	458
Germany	12,190	4,547	3,361	1,185
Holland	11,680	8,745	2,049	2,127
France	2,114	2,806	708	947
Spain and Canaries	27,778	27,455	9,626	10,001
Italy	17,838	13,517	5,045	3,661
United States	261,767	177,239	52,575	38,266
Australasia	17,642	9,852	5,366	2,569
British North America ..	11,049	4,789	2,996	1,319
Other countries	91,976	72,867	25,147	20,795
Total	469,467	327,804	111,193	82,489

Port.	BLEACHING POWDER, ETC.			
	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	£	£
United States	86,270	63,613	31,441	20,452
Other countries	30,209	30,490	10,753	10,113
Total	116,479	94,103	42,194	30,565

LONDON ASSOCIATION FOR PROTECTION OF TRADE.

THE fifty-fifth annual meeting of the London Association for the Protection of Trade was held recently at the offices of the Association, 16, Berners-street, London, W. The chair was taken by the President, Mr. George Maddox, who was supported by the following members of the Committee, Mr. F. L. Watkins, Vice-President, Messrs. Bussell, Marchant, and Williams; Mr. Ernest Longstaffe and Mr. T. C. Fenwick, solicitors, and Mr. J. H. Hadwen, secretary, were also present.

The President, in moving the adoption of the report, characterized it as the most satisfactory one for some years past, there having been a large accession of members and a corresponding increase in the revenue. In consequence of the recent development of the business, the Committee had decided to reconstruct their premises more in accordance with modern requirements, and the result was a very handsome suite of offices, fitted with electric light, and every convenience for the additional staff to adequately meet any demands made upon its resources. During the year there were 37,253 written status reports sent out, an increase upon the preceding year of 3,511; this number did not include verbal enquiries, of which no record is kept, and which in all proba-

bility would amount to at least as many more. The Association employs a staff of enquiry officers, and is besides in constant communication with all the Associated Trade Protection Societies of Great Britain (of which there are 79), besides having agents and correspondents in almost every small town, village and hamlet throughout the United Kingdom.

The Association recovered last year for its members, £116,918 2s. 2d. which is an increase of £17,233 9s. 9d., on the preceding year, as the largest return for the past 17 years. The Foreign Department deals with enquiries and debts in all parts of the world, and is being increasingly appreciated. The Legal Department gives advice; members gratuitously on any matter connected with their trade operations, and last year advice was given in 12,962 cases.

The report was seconded by Mr. Williams, supported by Mr. Bonnet and unanimously adopted. Votes of thanks were given to the Committee for their gratuitous services during the year, to the auditors, the solicitors, and the secretary, and all were suitably acknowledged. General satisfaction was expressed at the great improvement in the appearance of the offices and the promptness with which the business is despatched; and all present pledged themselves to do their utmost during the present year to make known the advantages of the Association among their friends.

TABLES FOR USE IN AGRICULTURAL ANALYSIS.

ALL RIGHTS RESERVED.

(Continued from p. 129.)

WE now come to the last of the potash tables, namely, that for the chloride, the percentage of this salt and also the actual percentage of oxide being given. It should be remembered that the separate table for the fourth place of decimals given on page 82 can be applied to all three of the potash tables, though it only appears once, with the kainit table. Example:—Supposing with the muriate table half a gram of sample has given 1.305 grams of precipitate, it will be found from the table that the sample contained 50.32% of K_2O , or 79.73% of KCl .

TABLE FOR MURIATE OF POTASH, SHOWING % K_2O AND KCl FROM GRMS. K_2PtCl_6 .
(OBTAINED FROM 0.5 GRM. SAMPLE.)

Gram Ppt.	.000		.001		.002		.003		.004		.005		.006		.007		.008		.009	
	K_2O	KCl	K_2O	KCl	K_2O	KCl	K_2O	KCl	K_2O	KCl	K_2O	KCl	K_2O	KCl	K_2O	KCl	K_2O	KCl	K_2O	KCl
1.15	44.34	70.26	44.38	70.32	44.42	70.38	44.46	70.45	44.50	70.51	44.54	70.57	44.57	70.63	44.61	70.69	44.65	70.75	44.69	70.81
1.16	44.73	70.87	44.77	70.94	44.80	71.00	44.84	71.06	44.88	71.12	44.92	71.18	44.96	71.24	45.00	71.30	45.04	71.36	45.07	71.42
1.17	45.11	71.48	45.15	71.55	45.19	71.61	45.23	71.67	45.27	71.73	45.31	71.79	45.34	71.85	45.38	71.91	45.42	71.97	45.45	72.03
1.18	45.50	72.09	45.54	72.16	45.58	72.22	45.61	72.28	45.65	72.34	45.69	72.40	45.73	72.46	45.77	72.52	45.81	72.58	45.85	72.64
1.19	45.88	72.71	45.92	72.77	45.96	72.83	46.00	72.89	46.04	72.95	46.08	73.01	46.12	73.07	46.15	73.13	46.19	73.20	46.23	73.28
1.20	46.27	73.32	46.31	73.38	46.35	73.44	46.39	73.50	46.42	73.56	46.46	73.62	46.50	73.68	46.54	73.74	46.58	73.81	46.62	73.87
1.21	46.65	73.93	46.69	73.99	46.73	74.05	46.77	74.11	46.81	74.17	46.85	74.23	46.89	74.30	46.93	74.36	46.96	74.42	47.00	74.48
1.22	47.04	74.54	47.08	74.60	47.12	74.66	47.16	74.72	47.19	74.78	47.23	74.84	47.27	74.91	47.31	74.97	47.35	75.03	47.39	75.09
1.23	47.43	75.15	47.46	75.21	47.50	75.27	47.54	75.33	47.58	75.39	47.62	75.46	47.66	75.52	47.70	75.58	47.74	75.64	47.77	75.78
1.24	47.81	75.76	47.85	75.82	47.89	75.88	47.93	75.94	47.97	76.00	48.00	76.07	48.04	76.13	48.08	76.19	48.12	76.25	48.16	76.31
1.25	48.06	76.37	48.10	76.43	48.14	76.49	48.18	76.56	48.22	76.62	48.25	76.68	48.29	76.74	48.33	76.80	48.37	76.86	48.41	76.92
1.26	48.58	76.98	48.62	77.04	48.66	77.11	48.70	77.17	48.74	77.23	48.78	77.29	48.81	77.35	48.85	77.41	48.89	77.47	48.93	77.53
1.27	48.97	77.60	49.01	77.66	49.05	77.72	49.08	77.78	49.12	77.84	49.16	77.90	49.20	77.96	49.24	78.02	49.28	78.08	49.32	78.14
1.28	49.35	78.21	49.39	78.27	49.43	78.33	49.47	78.39	49.51	78.45	49.55	78.51	49.59	78.57	49.62	78.63	49.66	78.69	49.70	78.78
1.29	49.74	78.82	49.78	78.88	49.82	78.94	49.86	79.00	49.89	79.06	49.93	79.12	49.97	79.18	50.01	79.24	50.05	79.31	50.09	79.37
1.30	50.13	79.43	50.16	79.49	50.20	79.55	50.24	79.61	50.28	79.67	50.32	79.73	50.36	79.79	50.39	79.85	50.43	79.92	50.47	79.98
1.31	50.51	80.04	50.55	80.10	50.59	80.16	50.63	80.22	50.66	80.28	50.70	80.34	50.74	80.40	50.78	80.46	50.82	80.53	50.86	80.59
1.32	50.90	80.65	50.94	80.71	50.97	80.77	51.01	80.83	51.05	80.89	51.09	80.96	51.13	81.02	51.17	81.08	51.21	81.14	51.24	81.20
1.33	51.28	81.26	51.32	81.32	51.36	81.38	51.40	81.44	51.44	81.50	51.48	81.57	51.51	81.63	51.55	81.69	51.59	81.75	51.63	81.81
1.34	51.67	81.87	51.71	81.93	51.74	81.99	51.78	82.06	51.82	82.12	51.86	82.18	51.90	82.24	51.94	82.30	51.98	82.36	52.02	82.42
1.35	52.05	82.48	52.09	82.54	52.13	82.61	52.17	82.67	52.21	82.73	52.25	82.79	52.28	82.85	52.32	82.91	52.36	82.97	52.40	83.03
1.36	52.44	83.09	52.48	83.16	52.52	83.22	52.56	83.28	52.59	83.34	52.63	83.40	52.67	83.46	52.71	83.52	52.75	83.58	52.79	83.64
1.37	52.82	83.70	52.86	83.76	52.90	83.83	52.94	83.89	52.98	83.95	53.02	84.01	53.06	84.07	53.09	84.13	53.13	84.19	53.17	84.26
1.38	53.21	84.32	53.25	84.38	53.29	84.44	53.33	84.50	53.36	84.56	53.40	84.62	53.44	84.68	53.48	84.74	53.52	84.80	53.56	84.87
1.39	53.60	84.93	53.64	84.99	53.67	85.05	53.71	85.11	53.75	85.17	53.79	85.23	53.83	85.29	53.87	85.35	53.90	85.41	53.94	85.47
1.40	53.98	85.54	54.02	85.60	54.06	85.66	54.10	85.72	54.14	85.78	54.17	85.84	54.21	85.90	54.25	85.96	54.29	86.02	54.33	86.08
1.41	54.37	86.15	54.41	86.21	54.44	86.27	54.48	86.33	54.52	86.39	54.56	86.45	54.60	86.51	54.64	86.57	54.68	86.64	54.72	86.70
1.42	54.75	86.76	54.79	86.82	54.83	86.88	54.87	86.94	54.91	87.00	54.95	87.07	54.98	87.13	55.02	87.19	55.06	87.25	55.10	87.31
1.43	55.14	87.37	55.18	87.43	55.22	87.49	55.25	87.55	55.29	87.61	55.33	87.68	55.37	87.74	55.41	87.80	55.45	87.86	55.49	87.92
1.44	55.52	87.98	55.56	88.04	55.60	88.10	55.64	88.16	55.68	88.23	55.72	88.29	55.76	88.35	55.79	88.41	55.83	88.47	55.87	88.53
1.45	55.91	88.59	55.95	88.65	55.99	88.71	56.03	88.77	56.06	88.84	56.10	88.90	56.14	88.96	56.18	89.02	56.22	89.08	56.26	89.14
1.46	56.29	89.20	56.33	89.26	56.37	89.33	56.41	89.39	56.45	89.45	56.49	89.51	56.53	89.57	56.56	89.63	56.60	89.69	56.64	89.75
1.47	56.68	89.81	56.72	89.88	56.76	89.94	56.80	90.00	56.84	90.06	56.87	90.12	56.91	90.18	56.95	90.24	56.99	90.30	57.03	90.36
1.48	57.07	90.43	57.11	90.49	57.14	90.55	57.18	90.61	57.22	90.67	57.26	90.73	57.30	90.79	57.34	90.85	57.37	90.91	57.41	90.98
1.49	57.45	91.04	57.49	91.10	57.53	91.16	57.57	91.22	57.61	91.28	57.64	91.34	57.68	91.40	57.72	91.46	57.76	91.53	57.80	91.59
1.50	57.84	91.66	57.87	91.71	57.91	91.77	57.95	91.83	57.99	91.89	58.03	91.95	58.07	92.01	58.11	92.07	58.15	92.14	58.19	92.20
1.51	58.22	92.26	58.26	92.32	58.30	92.38	58.34	92.44	58.38	92.50	58.42	92.56	58.46	92.63	58.49	92.69	58.53	92.75	58.57	92.81
1.52	58.61	92.87	58.65	92.93	58.69	92.99	58.72	93.05	58.76	93.11	58.80	93.17	58.84	93.24	58.88	93.30	58.92	93.36	58.96	93.42
1.53	58.99	93.48	59.03	93.54	59.07	93.60	59.11	93.66	59.15	93.73	59.19	93.78	59.23	93.85	59.26	93.91	59.30	93.97	59.34	94.03
1.54	59.38	94.09	59.42	94.15	59.46	94.21	59.50	94.27	59.53	94.34	59.57	94.40	59.61	94.46	59.65	94.52	59.69	94.58	59.73	94.65
1.55	59.77	94.70	59.80	94.76	59.84	94.83	59.88	94.89	59.92	94.95	59.96	95.01	60.00	95.07	60.04	95.13	60.07	95.19	60.11	95.25
1.56	60.15	95.31	60.19	95.37	60.23	95.44	60.27	95.50	60.31	95.56	60.34	95.62	60.38	95.68	60.42	95.74	60.46	95.80	60.50	95.86

(To be continued.)

THE RIBBLE JOINT COMMITTEE.

Monthly meeting of the Ribble Joint Committee was held at Preston on Monday. Mr. T. Fair presided. Mr. Hulton (the Clerk) reported that at the last meeting Mr. Potter had attended on behalf of Messrs. Potter and Co., of Darwen, against whom a summons had been issued for polluting the Darwen with solid matter, and had explained that the matter was to a great extent lime. It was decided that the explanation was satisfactory, and an undertaking was drawn up in which the firm promised to stop the pollution of the river. The committee accepted the undertaking submitted by Messrs. Potter. It was read from the Croston Urban Council asking the Joint Committee to assist them in their application to the Local Government to obtain borrowing powers for a cheaper scheme, by which they could use artificial filters instead of land filtration. They thought this was a case in which the rule of the Local Government Board might be somewhat relaxed. The Clerk said the Board had lately refused to grant any scheme which did not include land filtration. He thought it would be judicious to support such a scheme in one case. The chairman thought it would be excessively dangerous to put such a resolution on the books. Mr. Smith agreed with this, but considered a general representation of the cost and difficulty of land filtration might be made to the Local Government Board. It was said such a step ought only to be taken after very careful consideration. It was decided that the Committee could not support such a case. Cases against other authorities, including Leyland, Fulwood, Great Harwood, Clayton-le-Moors, Chorley, Withnell, Preston Rural District Council, Longridge, Rishton, Nelson, Burnley (county borough), and also a number of others, were adjourned for various lengths of time.

CALCIUM CARBIDE AND ACETYLENE REGULATIONS.

Following is the memorandum which has been issued by Colonel Vivian Majendie, H.M. Inspector of Explosives, under date 1st—

View to assisting local authorities in dealing with applications for keeping carbide of calcium, the following observations as to the dangers and prevention of the risks attaching to such keeping have been put up:—

Carbide of calcium is a solid substance which, while not itself inflammable, evolves, when brought into contact with moisture, a gas which is of a highly inflammable character. Carbide of calcium gas when mixed with air, or when under even slight compression, becomes powerfully explosive.

Carbide of calcium, unless carefully manufactured from suitable material, is liable to contain impurities which, when the carbide is exposed to water, evolve phosphoretted or siliciuretted hydrogen, gases which are evolved in appreciable quantities, would render the carbide liable to spontaneous ignition.

In addition to the risks indicated above, acetylene gas is capable of becoming an explosive compound when brought into contact with

the character of the apparatus to be used in connection with the carbide of calcium; for example, grave risk may arise from the question of safety; for example, grave risk may arise from the development of a too rapid conversion of the carbide into gas; or from the apparatus permitting escape or leakage of gas while being formed, or not allowing a free passage of the gas from the generator into the holder, and so causing excess of pressure in the holder or other part of the apparatus.

It might also arise if proper provision were not made for the removal of the residue of the carbide of calcium which has been used, and acetylene gas (viz., lime), as such residue might contain carbide of calcium which has escaped decomposition.

Therefore, be obvious that local authorities, in granting licences for carbide of calcium, should have regard to the foregoing with that view should make provision:—

1. The exclusive use of hermetically-closed packages for the storage and conveying of carbide of calcium.

2. Adequate ventilation of the place where the carbide of calcium is present.

3. Prohibition of any powerful compression of the gas produced by the apparatus or receptacles employed.

4. Keeping and use of pure carbide of calcium only, and the use of efficient arrangements for the sampling and testing of the same.

5. Exclusion of copper from all vessels or apparatus used with carbide of calcium, and the gas produced therefrom.

6. Use only of an apparatus which the local authority have themselves, under competent advice is of a safe and suitable

character, and the prohibition of the employment for the manipulation of such apparatus of any person other than a properly instructed and capable operator.

(g) The safe disposal of the residue and the prohibition of its introduction into sewers, cesspools, etc., unless mixed with at least ten times its bulk of water.

It will, in all cases, be for the local authority very carefully to determine whether the premises proposed to be licensed are themselves suitable for the purpose, regard being had to the formidable consequences (from fire or explosion) which might result from the careless or imperfect observance of any of the imposed conditions, especially in dwellings or in places or premises where large numbers of persons are liable to assemble.

MESSRS. CROSFIELD'S EMPLOYEES.

IT is the duty nowadays of every firm employing a large number of men to do everything in their power to improve the conditions under which their workmen labour, and to strengthen in every way the bonds of sympathy between master and man. We notice, therefore, with great pleasure that, in order to encourage thrift and good workmanship, the directors of Messrs. Joseph Crosfield and Sons, Limited, have decided to abandon their original system of giving their men so-called "perquisites" at various times of the year, and have decided to replace these by more substantial and more permanent benefits.

Hitherto it has been the custom to distribute meat, clogs, and other gifts at Christmas, and in the summer the whole of the firm's employees used to have a day trip to the seaside, special trains and all arrangements for the occasion being made at the expense of the company. This is now going to be done away with, and in the place of it an arrangement has been proposed by which an annual holiday of a week's duration will be given to each man in the company's employ. With this view a meeting was held at the Bank Quay Works on Wednesday, March 3rd, and the new proposals were submitted to the men by the directors. The meeting enthusiastically accepted the proposition of an annual holiday of one week's duration, with full pay for all men who have been in the employ of the firm since January 1st, 1896.

The directors further decided to give each man who had been in their employ for from 8 to 15 years a bonus of 5s., and to those who have been in their employ over 15 years a bonus of 10s., in addition to their weekly pay. We understand that the lads in the works will participate equally with the men in these benefits. If one considers that Messrs. Joseph Crosfield and Sons, Limited, employ over a thousand hands, it is obvious that this arrangement, made solely for the benefit of the workmen, will involve a very much greater expenditure by the firm than has hitherto been incurred by the issuing of free gifts, or providing a day's enjoyment at the seaside; still the directors feel sure that the extra expense will be justified by the general improvement which will result throughout the works.

In addition to this the firm have lately erected a dining-room for the various managers and sub-managers, where they can meet together for lunch, and exchange views on their various departments.

Other plans now under consideration for the comfort of the workers generally are improvements in the existing sick club, the establishment of a breakfast and dining-room in the works capable of accommodating all the hands, and the inauguration of a pension fund. The advisability of establishing an 8 hours' day is also under discussion.

PETROLEUM FATALITY.—A fire which resulted in the loss of three lives broke out at half-past one on Saturday morning in a small house in Nareham-street, Hoxton, tenanted by Mr. Joseph Linney. A petroleum lamp which was left burning during the night by Mr. Linney by the side of his bed was overturned and the bed clothes were ignited. Before he and his wife and child could escape they were badly burnt and were removed to the Metropolitan Free Hospital, where all the three died the same morning.

THE DISPOSAL OF CALCIUM CHLORIDE.—The great problem of calcium chloride utilization has been solved by two of our German friends, whose process is described in a recent number of the *Allg. Oesterr. Chem. u. Tech. Zeitung*. To the calcium chloride solution they add sulphate of copper, also in solution, and, after separating the sulphate of lime, precipitate the copper by means of H_2S , thus producing sulphide of copper (which can be oxidised to sulphate), and a solution of hydrochloric acid, which only needs concentration and rectification. The sulphuretted hydrogen required is obtained by reducing the sulphate of lime and decomposing with carbonic acid gas. This process shows some advance upon one which was patented in this country a year or two ago, and which prescribed the use of permanganate and sulphuric acid with the calcium chloride. The advance may not be a great one, but it is satisfactory to find that we are moving in the right direction.

Trade Notes.

THE KENT-CALAIS COAL BED.—The discovery of coal not far from Calais seems to confirm the opinion often expressed by experts that the carboniferous banks of the north of France are continued beneath the Channel through Kent to Bristol.

Obituary.—It is with regret we have to note the death of Mr. J. A. Beck, an old and well-known chemical manufacturer in Ireland. His firm have works at Dalton-street, Belfast, and are makers of vitriol, muriatic and nitric acids, and dyers' chemicals.

NITRATE STATISTICS.—The Permanent Nitrate Committee's public statistical circular for March shows total exports to Europe, February, 1,270,000 quintals. Loading for Europe, 1st March, 614,000 quintals. Imports, Europe, February, 107,750 tons. Deliveries, Europe, February, 170,280 tons. Visible supply, Europe, 1st March, stocks and afloat, 590,000 tons.

NEW INDUSTRY FOR WINSFORD.—At the last meeting of the Winsford Urban Council, plans were passed for the new soap works, which are being erected at Winsford with all speed by the Salt Union, Limited, on ground facing the river Weaver. The works will cover an area of 720 square yards. The establishment of the new industry is eagerly looked forward to by the inhabitants of the town, especially in view of the continued depression in the salt trade.

SALT SHIPMENTS TO THE EAST INDIES.—Messrs. Thos. Higgin and Co. report that the clearances of salt from Liverpool for Calcutta from January 1st to 28th February amounted to 15,475 tons, compared with 13,372 tons last year, 16,807 tons in 1895, and 8,559 tons in 1894. The clearances from other ports for Calcutta for the same period were 10,593 tons—a total of 26,068 tons. The clearances from Liverpool for other Indian ports during the two months were 5,510 tons. The probable clearances during March are estimated at 36,500 tons.

THE WORLD'S COAL PRODUCTION.—A Parliamentary return has been issued giving the production and consumption of coal, &c., in the principal countries of the world from 1883 to 1895 inclusive. The report states that the Continental country having the largest production after England is Germany, although the quantity produced by the Teutons does not amount to half of what is at present turned out in the United Kingdom, the respective figures for 1895 being 189,661,000 tons for the United Kingdom, and 79,169,000 tons for Germany. After Germany comes France with 27,583,000 tons, and Belgium with nearly the same output. The average value of coal at the pit's mouth in England was 6s. 8d., and in Germany 6s. 7½d. per ton. In France the average value was 8s. 10d., and in Belgium 7s. 6¼d. Special attention is drawn to the output of the United States.

THE CRISIS IN THE OIL TRADE.—The miners and retortmen of Linlithgow Oil Company are likely to give trouble after all, over the proposed reduction. A meeting of the men has been held on the Philpston Road, near Kingscavil. The deputation of miners submitted a report of their interview with the general manager. He said the position of the company was that the value of its ammonia and scale had depreciated £8,000. during the past few months. The reduction would give the company £3,000. The landowners had signified their willingness to aid the company regarding the royalties. The directors were also willing to make personal sacrifices to effect repairs and carry on the works if the men submitted to the reduction. If the men were unwilling to make a sacrifice the works would remain idle. A ballot vote was taken by the miners, when it was almost unanimously agreed to remain idle, although a considerable number of men were reported in the mines. The retortmen remain firm in their resolution against the reduction. Mr. John Wilson addressed the meeting.

SAUCE FOR THE GOOSE IS SAUCE FOR THE GANDER.—At Liverpool, on February 25, Captain R. H. M'Neil, master of the steamship *Helen*, was summoned for allowing an oil lamp to be used upon his vessel whilst in the Toxteth Dock, burning oil which gave off an inflammable vapour at a temperature of less than 120° F. The evidence was to the effect that the steamer was discharging cotton at the dock in question, when the lamp got broken, and the oil was spilt over some cotton, igniting it. The fire was put out with much difficulty. The oil used was common petroleum. Mr. Tongue, who prosecuted on behalf of the Dock Board, referred to the danger of using petroleum of a low flashing point, and asked for a penalty to be inflicted which would be a warning to other offenders. The magistrates inflicted a fine of £5, and costs, the Chairman remarking that it appeared that the cheap oil had been used from motives of economy, and, if that was so, the practice must be stopped. [By what sophistry of argument the low-flash oil partisans can maintain that 73° F. oil is safe for general use after reading the above, we are at a loss to comprehend. Perhaps the "Father of Light" or his million-lensed spectacles might help us, as it has helped others, but we have not quite lost our powers of "natural" vision yet.—Ed. C. T. J.]

OLDBURY ALKALI WORKS PROVIDENT SOCIETY.—The report and statement of accounts of this society were issued last week. The members' contributions during the year amounted to £13 was received from the firm. There had been paid to the £411, and at the end of the year there was a balance of £104. In the Convalescent Home there was 45 inmates during the year the results were very satisfactory. The members contributed and the firm added a donation of £21. At the close of the year there was an adverse balance of £6 2s. 9d. In connection with the accident fund fifty-eight claims for disablement were allowed company had paid into the bank £149. 17s. 2d., in accordance with the rules of the society, and the amount received from the work £113. 2s. 2d. The balance in hand at the close of the year was £36. 10s. 7d. Out of this fund £50. had been paid to the West Bromwich Saturday collection, and £5. 5s. to the eye department of the institution.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are fairly steady at a reduction to 2s. 10d. for 2s. 6d. for 50/90's. Carbolic acids are firm, especially 60% which is now quoted 2s. 5d.; crystals, 40%, are worth 7¼d. naphtha remains nominally at 1s. 1d., while solvent is to be firmer at 1s. 8d. Creosote is rather easier, but prices the same. Anthracene is quiet. Pitch is rather better at 2 East Coast.

Sulphate of ammonia has continued to improve. There is a better demand from all quarters, and with the season production approaching the prospect is more satisfactory rule firm:—London outside makes £8. 5s., Liverpool £8. 5s., Hull £8. 5s., and Leith £8. 5s. to £8. 7s. 6d., all prompt. soda dull.

MISCELLANEOUS CHEMICAL MARK

There is no material change to report in position of alkalies except that in regard to values there is rather a firmer tendency to the recent reported arrangement between the two large turers. Demand on the whole, however, is without improvement either for home trade or export. Current prices of caustic soda as for some time past, viz.:—F.o.b. Liverpool, 77%, £9. 5s. 8d. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. 10-ton lots. Ammonia alkali, 58%, still £3. 7s. 6d., home trade, and 35s. to 40s. f.o.b. for certain market Bleaching powder continues in good request both for forward shipment, and price is firm at £6. 10s. f.o.r. works. 12s. 6d. to £6. 15s. f.o.b. Chlorates are weak, at 3½d. and respectively, for potash and soda. Sulphur firm at £4. 1s. Sulphate of copper rather lower, nominally £18. 15s. f.o.b. bonate and soda crystals are without change in value. For caustic and carbonate, there is still a good inquiry, and well maintained. Yellow prussiate of potash, 5¼d. per lb. of soda, 4d. to 4¼d. per lb. Cyanide, 98%, 11d. per lb. Soda slightly easier, at 7s. 10½d. prompt and 8s. forward acetate of lime firm, at £4. 15s. to £5. at usual place of consumption. Grey acetate of lime firmer. Acetates of lead without change in value. Acetic acid inclined to be firmer. of soda, £13. 15s. per ton. Carbolic acid crystals firm, vancing tendency. In aniline oil and salt there is no change during the week. Oxalic acid steady, at 3¼d. to 3½d. acetate quantity. White powdered arsenic is still below required quantity, and price firm at £24. 5s. to £24. 10s. for best Arseniates also firmer in sympathy. Tin crystals 4½d. to 4¾d. Reports, generally, do not indicate any material improvement in the cellaneous trade.

LIVERPOOL OIL AND COLOUR MARK

OILS.—Palm oil is quieter, though the tone of the market Sales have been mainly confined to soft oils at £19. per ton being scarce continues to rule firm in price, with a fair Linseed is the turn firmer, Liverpool makes in export casks quoted 15s. 9d. to 17s. per cwt., this being sellers' price. Castor has settled down firm at 15s. 6d. to 16s. 3d. for Liverpool holders being steady thereat. Castor oil is rather quiet. The quotations are a fraction easier. Good seconds Calcutta standard to 3d.; first pressure French, 2¼d. per lb. Tallow, though is decidedly steady, and prices are unchanged. Resin is unslowly, owing no doubt to the firmness of prices which are Spirits of turpentine remain at 21s. 3d., and there is a good thereat. Petroleum is quiet, with American 6d. to 7½d. Russian refined 5¼d. per gallon.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 45s. 8d., Middlesbrough 40s. 9½d. cash, and hematite 48s. 9½d. Copper quiet: Chili bars, G. O. B.'s and G. M. B.'s, closed at £50. 12s. 6d. to £50. 17s. 6d. cash, and £51. 1s. 3d. to £51. 6s. 3d. three months. Tin steady: Straits closed at £60. 3s. 9d. to £60. 13s. 9d. cash, and £60. 18s. 9d. to £61. 8s. 9d. three months; Australian, £61. 15s.; English ingots, £64. 10s. Lead dull: Spanish, £11. 12s. 6d.; English, £11. 15s. Silesian spelter, ordinary, £17. 7s. 6d. to £17. 10s. Nickel, 1s. 2½d. Antimony, £31. Quicksilver: First hands, £7.; second hands, £6. 19s. Copper shares quiet: Cape, 2½ to 2½; Copiapo, 2 to 2½; Libiola, 2½ to 2½; Mason and Barry, 2½ to 2½; Rio Tinto, 27½ to 27½; Tharsis, 6½ to 6½.

GLASGOW, WEDNESDAY.—Market easier, and a small business. Scotch done at 45s. 9d. to 45s. 8½d. cash, and 45s. 11½d. to 45s. 11d. one month; buyers, 45s. 8d. cash; sellers, 45s. 8½d. Cleveland done at 40s. 10½d. to 40s. 10d. cash, and 41s. 0½d. one month; buyers, 40s. 9½d. cash; sellers, 40s. 10d. Cumberland hematite done at 48s. 10d. to 48s. 9½d. cash, and 49s. one month; buyers, 48s. 9½d. cash. Middlesbrough hematite done at 48s. 11d. cash; buyers, 48s. 11d. cash.

REPORT ON MANURE MATERIAL.

There is no special feature to comment upon, the market having been rather quiet throughout the week. Manure manufacturers continue busy getting out manures, and meantime are not buying much further material, whilst consumers orders are not yet urgent. The quotations for mineral phosphates are unchanged. There is nothing fresh to report in cargoes of River Plate bones, except that all charters at present being made are for the United States, where better prices can be obtained than either in United Kingdom or Continent. United Kingdom buyers idea of value for shipment is about £3. 12s. 6d., but over the equivalent of £3. 15s. can readily be obtained for the United States. Crushed kumachee bones, March shipment, have been sold at £3. 15s., and £3. 17s. 6d. now asked for further quantity. Bombay bone meal is in ample supply, and £3. 12s. 6d., ex quay, would be business. Nitrate of soda is steady, but quiet at 8s. 1½d. to 8s. 3d. per cwt., good to fine quality on spot.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia, contrary to expectation, has not gone back again after the needs of the end of the month had been met, but has actually continued rising. Last week £8 5s. prompt was paid several times, and the price is certainly not under that to-day. Granting spring-like weather from now onward, the article is likely to advance further, under the call for a considerable quantity for home application. Continental letters also reflect a better condition of market, and stocks in makers' hands are considered to be within manageable proportions. The market for standard chemicals is slightly improved, perhaps, particularly in the direction of export inquiry as regards Baltic requirements. Prices, however, show no bettering anywhere, the only change being one in the other direction, viz, borax, which has been reduced to £18. Mineral oils and solid paraffins are all very quiet, with the exception of lubricants. Prices are nominally unchanged, but there is unquestionably in-cutting going on.

Chief prices current are:—Soda crystals, £2. 2s. 6d., nett, Tyne; soda ash, 48/62°, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 48/52°, £4. 17s. 6d. to £5. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, £18., and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 4½d.; sulphate of ammonia, £8. 5s. prompt, f.o.b. Leith; salammmoniac, first and second white, £35. and £33. nett, any port; sulphate of copper, £19., less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 7½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were nil.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The position of values upon the market is more steady than a week ago. The stocks of seed in Hull at the end of last month were: Linseed, 36,959 qrs., against 59,992 qrs. month ending January; rapeseed, 2,965 qrs., against 789 qrs. a month ago; cottonseed, 265 tons, against 300 tons. The imports for the month have been: Linseed, 15,715 qrs., against 52,965 qrs. the previous month; rapeseed, 16,854 qrs., against 6,532 qrs.; cottonseed, 25,107 tons, against 19,773 tons. Linseed oil is steady at 13s. 9d. per cwt., spot naked; forward, March-April, 14s.; May-August, 14s. 9d., naked; boiled and refined, £1 to £1. 10s. per ton extra. Cotton oil: refined steady, spot naked, 13s. 1½d. per cwt.; forward, March-April, 13s. 1½d. to 13s. 3d.; May-August, 14s.; filtered refined, £1. to £1. 5s. per ton extra; crude ditto, spot, 11s. 6d. per cwt.; casks, £1.; and ordinary barrels, £1. 10s. per ton extra. Spirits of turpentine are quoted 21s. 6d. per cwt. Castor oil remains firm. East Indian in cases, first pressure, 4d. per lb.; French, first pressure, 3½d. per lb. Oleines unchanged. Olive oil from £32. to £35. per ton. Italian olive oil soaps from £16 per ton Hull. Cod oils from £16. to £18. per ton. Pail lard is quoted 23s. 6d.; and Irish bladdered, 29s. to 36s. per cwt. Danish and Turkish butter, £5. 3s. to £5. 10s. per cwt.; Dutch, £5. 2s. to £5. 8s.; Colonial, £4. 16s. to £5. Yorkshire brown grease, £8. to £9. per ton.

CAKES.—Linseed cakes steady, 95% pure, £6 10s. to £6. 12s. 6d. Oilcakes, £5. 15s. Americans, £5. 17s. 6d. Cotton cakes firm: Best makes, £3. 17s. 6d.; seconds, £3. 15s. Rape cakes: Black sea, £3. 10s. per ton.

PAINTS.—Makers here are beginning to be very busy, which is expected to continue and increase as the spring and summer weather continues to develop. The prices are: Red and white leads unchanged. Dry mineral colours £3. to £8. per ton. Various ordinary coloured paints from £10. per ton. Ready-mixed ditto in tins are much cut up, from £22. per ton. Paint remover 25s. to 30s. per cwt. Black varnish, £5. 10s. per ton. Oak varnish 5s. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

There is no change to report in the chemical market, though business, if anything, is a shade brisker. Prices remain unchanged. Caustic, 76/77°, £9 per ton; 70°, £7. 10s. per ton. Soda crystals, £2 2s. 6d. per ton, gross weight, locally. Sulphur scarce at £5. per ton.

Bleaching powder, soft, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77°, £9. per ton, nett; do., 70°, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is firm, at 9s. to 9s. 6d. per ton, f.o.b. Tees.

COALS.—Trade is quiet generally, with little or no alteration in prices. Coke continues in demand, and is firm at 15s. and 16s. per ton. Best Northumbrian steam, 7s. 9d. to 8s. per ton; second qualities, 7s. to 7s. 3d. per ton; small steam, 3s. to 3s. 6d. per ton. Gas coals, quieter, 7s. 6d. to 8s. 3d. per ton. Bunker coals, 7s. 3d. to 8s. per ton. Household coals, 10s to 11s. per ton. Coke, steady at 15s. to 16s. per ton.

New Companies.

Northfleet Chalk and Whiting Co., Ltd.—CAPITAL, £40,000., made up of 20,000 preference ordinary and 20,000 deferred ordinary £1. shares. This company has been formed to acquire and work the Red Lion Chalk Quarries, Northfleet, Kent. The registered office is 55, Bishopsgate-street Within, E.C. The subscribers to the memorandum of association are:—H. J. Bartlett, 86, Leadenhall-street, E.C.,

shipbroker; F. Abraham, 3, Titchfield-terrace, Regent's Park, secretary; A. G. Palmer, 20, The Gardens, East Dulwich, C.A.; H. Thompson, 9, Charnock-road, Clapton, gentleman; F. J. Folkard, 192, Stockwell-road, S.W., gentleman; W. D. Barclay, 62, Leadenhall-street, E.C., C.K.; E. H. Tamplin, 2, Wimbledon Park-road, Southfields.

Slateford Paper Mills, Ltd.—CAPITAL £6,500, in £1. shares. This company has been formed to acquire the paper-making business of W. Laughton, Slateford Mill, Mid Lothian, which is the registered office. The subscribers to the memorandum of association are:—W. Laughton, Slateford Mid Lothian, papermaker; J. Dixon, 25, George-street, Edinburgh, W.S.; T. Wilson, 25, George-street, Edinburgh, solicitor; T. McKechnay, 14, Gladstone-terrace, Edinburgh, book-keeper; J. Metoike, 7, Clyde-street, Edinburgh, lithographer; D. Hine, 5A, York-place, Edinburgh, C.A.; J. Halley, 13, Belford-road, Edinburgh, cashier.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. J. DAWSON, G. B. SAUNDERS, and H. TODD, chemical and metal brokers, Newcastle-on-Tyne, under the style of Dawson, Saunders, and Todd, as far as regards W. J. Dawson.

E. F. and H. BAXTER, Part, St. Helens, alkali manufacturers and copper-smelters, under the style of Henry Baxter.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

ARTHUR, E. (formerly trading as Thos. Holmes and Son), Bristol and Saltford, late Kelston, Somersetshire, oil and colour dealer and paint and varnish manufacturer.

Adjudication.

MILBURN, G. D., and MILBURN, F. (trading as Diggle Milburn and Sons), Gigg near Bury, dyers.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM

LONDON.

Week ending February 27th.

Acetic Acid—

Sweden, 47 pks. W. T. Mills
Holland, 90 Little & Johnston
" 151 A. & M. Zimmermann

Alkali—

Germany, 21 c. J. Barber & Co.

Alum—

Holland, 13 cks. Ohlenschlager Brs

Antimony—

Japan, 20 t. Union Lighterage Co., Ltd.

Antimony Ore—

Turkey, 150 t. J. Bamber

Arsenic—

Portugal, 159 brls. Coverley & Westray

Asbestos—

Germany, 490 Craven & Co.

Canada, 390 W. Byford

Italy, 375 J. Barber & Co.

" 110 Brit. Asbestos Co.

" 225 Bender & Marting

Barium Chlorate—

Germany, 34 cks. Petri Brs.

Barium Sulphate—

Belgium, 34 cks. Fleming's Oil & Chem. Co.

Barytes—

Germany, 115 cks. W. Harrison & Co.

Belgium, 104 J. L. Lyon & Co.

Holland, 36 Brandram Brs. & Co.

Bleaching Powder—

Holland, 47 cks. J. M. Steel & Co.

Bromide of Iron—

Germany, 15 cks. A. & M. Zimmermann

Camphor—

Germany, 65 tubs. Lewis & Peat

" 6 pks. T. H. Lee

Caoutchouc—

Zanzibar, 3 c. L. & I. D. Jt. Co.

Madagascar, 20 S. Figgis & Co.

Germany, 10 R. G. Hall & Co.

Madagascar, 16 L. & I. D. Jt. Co.

E. Indies, 15 Stewart Hall & Co.

B. Honduras, 11 Belize Estate & Prod. Co.

Penang, 306 E. Boustead & Co.

" 66 Butler's Wf. Ltd.

U. States, 1 L. & I. D. Jt. Co.

Madagascar, 1 Hale & Son

Aden, 9 L. & I. D. Jt. Co.

Madagascar, 26 Major & Field

" 44 Kleinwort Sons & Co.

Rangoon, 1 Prop Hay's Wf.

Carbolic Acid—

Germany, 50 pks. J. G. Back

Castor Oil—

E. Indies, 5 cks. A. B. Curtis

France, 21 Perkins & Homer

" 40 brls. Mordaunt

" 52 C. Windschugel

Germany, 10 F. Boehm

Italy, 55 R. G. Hall

Belgium, 28 & Co.

Caustic Potash—

France, 30 drs. J. Barber & Co.

" 20 South Devon Wf. Co.

Holland, 20 Thames S. T. & L. Co.

" 60 J. M. Steel & Co.

Chemicals (otherwise undescribed)

Germany, 430 L. & I. D. Jt. Co.

Germany, 252 H. Lambert

" 79 Philipps & Graves

Belgium, 72 Société John

France, 8 Cockerill

U. States, 665 Mory & Co.

Belgium, 40 Flagecollet & Co.

" 122 O. Scholzig

Germany, 132 T. H. Lee

Holland, 51 F. W. Berk & Co.

Germany, 1,014 Philipps & Graves

Holland, 15 A. & M. Zimmermann

Germany, 10 G. Rahn & Co.

" 10 C. Gross & Co.

Citrate of Lime—

Italy, 23 cks. Thames S. T. & L. Co.

" 23 B. Jacob & Sons

Cream of Tartar—

Italy, 10 cks. Fellows,

Spain, 16 Morton & Co.

France, 27 B. & F. Wf. Co.

" 10 C. F. Gerhardt

" 5 M. Ashby, Ltd.

" 20 W. C. Bacon & Co.

Dextrine—

Germany, 50 bgs. Hernu, Peron & Co.

" 200 H. Lorenz

Dyestuffs—

Argols

Spain, 595 bgs. B. Jacob & Sons

Italy, 29 cks. Thames S. T. & L. Co., Ltd.

" 9 Fellows, Morton & Co.

Cochineal

Canaries, 8 bgs. W. M. Smith & Sons

" 12 Kuhner, Henderson & Co.

" 400 bks. Williams, Torrey & Co.

Rangoon, 250 A. Howden & Co.

" 50 Hoare, Wilson & Co.

Extracts

France, 200 cks. T. H. Lee

" 168 cks. B. & F. Wf. Co.

Norway, 2 Pickford & Co.

Germany, 200 bgs. Hoare, Wilson & Co.

Italy, 3 brls. Major & Field

France, 116 pks. Bennett S. S. Co.

Gambler

Singapore, 223 brls. J. Greig

" 3,047 Adamson, Gillilan & Co.

Indigo

E. Indies, 10 cks. Binny & Co.

" 31 E. Bower & Co.

" 39 J. Kenyon & Sons

" 92 P. Macfadyen & Co.

" 86 T. Barlow & Bro.

" 10 Credit Lyonnais

" 2 P. & O. Co.

" 20 J. Owen

" 8 Croysdale & Co.

" 46 R. von Glehn

" 115 Patry & Pasteur

" 140 F. W. Heilgers

" 29 & Co.

" 7 Elkan & Co.

" 39 Arbuthnot, Latham & Co.

" 131 Lewis & Peat

" 58 Parsons & Keith

" 81 Darling Brs.

" 389 H. W. Jewesbury

Belgium, 4 A. B. Curtis & Co.

C. America, 12 Société John

" 2 bxs. Chalmers, Guthrie & Co.

" 15 F. Huth & Co.

" 240 Ross & Deering

Germany, 5 T. H. Lee

E. Indies, 15 Parry S. Co.

" 58 Ralli Brs.

" 149 Hopkins, Ford & Co.

" 21 J. Hatton Hall

" 376 L. & I. D. Jt. Co.

Logwood

Mexico, 33 t. L. & I. D. Jt. Co.

Myrabolams

E. Indies, 1,094 pks. A. B. Curtis & Co.

Italy, 994 bgs. J. Kitchen

Shumac

E. Indies, 25 cks. H. Johnson & Sons

Italy, 250 bgs. Beresford & Co.

" 100 Clark, Gray & Co.

" 200 Harris Brs. & Co.

" 50 M. D. Co.

Tanners' Bark

U. States, 28 t. F. Claydon & Co.

Natal, 18 A. & W. Nesbitt

Italy, 45 J. T. Rennie

" 4 Flack, Chandler & Co.

Valonia

A. Turkey, 30 t. A. J. Humphery

" 211 A. & W. Nesbitt

Dyestuffs (otherwise undescribed)

Germany, 12 cks. Bremer, Bennett & Co.

Farina—

Germany, 50 bgs. H. Lorenz

Belgium, 30 Bennett S. S. Co.

" 50 Dunlop Brs. & Co.

Glucose—

U. States, 500 pks. 500 c. Beresford

" 500 500 G. Clark

" 250 250 & Son

" 250 250 Thames S.

" 250 250 T. & L. Co.

" 300 300 C. S. Lovell

" 300 300 Seaward Brs.

Germany, 40 390 Robinson, Son & Co.

" 390 Bennett S. S. Co.

U. States, 390 2,500 Williams,

" 75 469 Torrey & Co.

" 250 250 W. Baldwin

" 30 300 E. & T. Pink

" 250 250 Trier, Meyer & Co.

" 1,904 2,593 Ohlenschlager Brs.

" 250 250 Fellows

" 3,000 3,000 Wf. Co.

" 1,291 1,404 Paros

" 1,736 5,386 L. & I. D. Jt. Co.

" 1,736 5,386 R. G. Hall & Co.

Glue—

Germany, 450 Herrmann, Keller & Co.

U. States, 60 H. Lamb

Holland, 18 Taylor Brs.

" 22 Armstrong & Co.

" 297 Philipps & Graves

Austria, 60 J. Barber & Co.

France, 150 C. A. & H. Nichols

" 200 Elkan & Co.

" 180 J. Harrison

" 12 Bennett S. S. Co.

" 10 Meay & Co.

Holland, 50 G. Rahn & Co.

Italy, 36 R. Bennett & Co.

Infusorial Earth—

Germany, 47 A. Hall

Holland, 10 J. W. Kier

" 10 T. H. Lee

Lamp Black—

U. States, 44 hds. J. Mohr

Lead Acetate—

Germany, 20 kgs. R. W. Greeff & Co.

Manure—

France, 50 t. Barnist Brs. & Sons

Metallic Oxide—

Germany, 2 cks. Brit. Anti-Fouling

" 2 cks. Compo Co.

Methyl Alcohol—

Germany, 7 dms. Sutton, Carden & Co.

" 10 F. Jones & Co.

Belgium, 15 "

Mica—

Ceylon, 4270 E. Davis & Co.

Molasses—

U. States, 500 cks. 2,850 c. Ohlenschlager Brs.

Ochre—

France, 43 cks. R. & F. Wf. Co.

Holland, 8 Philipps & Graves

" 20 pks. "

ane, 400 bgs. Anderson, Weber, & Co.
 m, 66 cks. R. G. Hall & Co.
 838 J. Thredder, Son, & Co.
Sodium Bicarbonate—
 any, 16 cks. A. & M. Zimmermann
Sodium Carbonate—
 any, 105 c. Petri Brs.
 410 Gas Light & Coke Co.
 aland, 22 H. Hehl
Sodium Chloride—
 any, 500 bgs. F. W. Berk & Co.
Sodium Oxymuriate—
 ay, 16 kgs. G. Boor & Co.
Sodium Permanganate—
 ad, 10 cks. G. Rahn & Co.
 1,390 t. Anderson, Anderson, & Co.
Silver—
 500 btl. L. & I. D. Jt. Co.
 ad, 11 brls. Philipps & Graves
 m, 10 Lucas & Spencer's Wf.
 tes, 3,568 F. & S. Chiesman & Co.
Oil—
 ay, 7 brls. H. Hunt
 250 C. Price & Co.
Tre—
 ay, 42 cks. J. Hall & Son
 1,000 bgs. C. Wimble & Co.
 ies, 1,238 Lucas & Spencer's Wf.
 613 Perkins & Homer
 ay, 172 pks. P. Hecker & Co.
 d, 166 c. R. W. Greeff & Co.
 m, 1,000 J. W. Barker
 560 R. Waters
Chlorate—
 100 kgs. Ross & Deering
Hypsulphite—
 ay, 200 kgs. A. & M. Zimmermann
 es, 20 brls. Pickford & Co.
 ay, 125 cs. Philipps & Graves
 n, 98 Taylor Brs.
 d, 820 Little & Johnston
 25 Philipps & Graves
 ay, 3,285 Horne & Co.
 n, 262 F. Claydon & Co.
 100 C. Tennant, Sons, & Co.
 60 J. Barber & Co.
 a, 80 T. H. Lee
 es, 1,600 E. & T. Pink
 100 sks Bellamy's Wf., Ltd.
e—
 9 cks. H. Hill & Sons
 80 bgs. Rumpf & Co.
 25
 10 t. G. Boor & Co.
 7 10 c. J. T. Morton
Acid—
 6 pks. F. C. Devon & Co.
 30 B. & F. Wf. Co.
 ay, 2 1 ck. Domeier & Co.
 4 F. C. Devon & Co.
 20 Kirkpatrick & Co.
arine—
 5 cs. G. Rahn & Co.
 8 pks. J. Barber & Co.
 ay, 25 cs. Steinhoff, Sons, & Co.
——
 es, 6 pks. Dawson Brs.
 19 Taylor Brs.
 ay, 3 H. Lambert
on—
 Cong, 50 cs. W. M. Smith & Sons
Lead—
 ay, 28 cks. M. Ashby, Ltd.
 22 Petri Brs.
 37 Taylor Brs.
 6 Haefner, Hilpert, & Co.
 15 A. G. Soutter & Co.
 8 W. A. Rose & Co.
 8 J. Barber & Co.
 40 brls. Leach & Co.
 58 cks. T. & W. Farniloe
 9 A. & M. Zimmermann
 96 T. Palmer
ulp—
 439 pks. Henderson, Craig, & Co.
 24 Thames S. T. & L. Co.
 939 Moreton Cox Brs.

Germany, 160 H. Lambert
 Belgium, 80 Henderson, Craig, & Co.
 Sweden, 400 Tough & Henderson
 Norway, 3,356 Moreton, Cox Brs.
 Holland, 46 W. G. Taylor & Co.
 " 260 Philipps & Graves
 " 5 J. Owen
 Belgium, 1,712 F. Claydon & Co.
Zinc Oxide—
 Germany, 40 brls. M. Ashby, Ltd.
 35 cks. R. W. Greeff & Co.
 Holland, 20 brls. M. Ashby, Ltd.
 U. States, 125 "

LIVERPOOL.

Week ending February 25th.

Acetic Acid—
 Rotterdam, 17 balloons
Alum Cake—
 Rotterdam, 50 bgs.
Ammonium Carbonate—
 Marseilles, 5 bgs.
Asbestos—
 Genoa, 8 bls.
Barytes—
 Rotterdam, 69 cks.
Bone Meal—
 Bombay, 6,881 bgs.
Boracite—
 Panderna, 5,425 bgs.
Caoutchouc—
 Mollendo, 98 bls. J. H. Schroeder & Co.
Chemicals (otherwise undscribed)
 Rotterdam, 8 cs.
 Hamburg, 1
Colours—
 Bremen, 51 pks.
 Rotterdam, 7 cs. 5 tubs
Cottonseed Oil—
 Norfolk, Va., 100 brls.
Cream of Tartar—
 Barcelona, 5 cks. Sachse & Klemm
 " 20 brls.
 Bordeaux, 29 cks.
Dyestuffs—
Algarroballa
 Coquimbo, 237 sks. Schintz & Co.
Aniline
 Baltimore, 2,284 bgs.
Argols
 Oporto, 24 cks. German Bank
 Bordeaux, 51
Cochineal
 Gd. Canary, 3 bgs. S. L. Behrens & Co.
Divi Divi
 Hamburg, 1 cs. 1,090 bgs.
Extracts
 Philadelphia, 350 bxs.
 Hamburg, 40 cks. 32 cs.
Indigo
 Bombay, 2 bxs. T. Meadows & Co.
 2 R. Varley
Logwood
 Hayti, W. I., 436 t.
Myrabolams
 Bombay, 340 bgs.
Orchella
 Lisbon, 17 bls.
Valonia
 Syra, 400 bgs. G. Flahnt
 Smyrna, 130 t. G. Essayan & Co.
 " 88 150 Barry Brs.
 " 103 10 c. 4,627 bgs.
Farina—
 Havre, 1,345 sks. Cunard
 Fiume, 55 bgs. S. S. Co., Ltd.
Glucose—
 Baltimore, 250 brls.
 Newport News, 150
 New York, 400 100 sks. T. M. Duche & Son
 " 10 H. Pierce
Glue—
 B. Ayres, 10 cs.
 Rotterdam, 3 12 bls. 310 bgs.
 Fiume, 100
Lamp Black—
 New York, 10 cs.
Mineral White—
 Bordeaux, 50 bgs. R. J. Francis & Co.

Molasses—
 Alexandria, 1,076 cks.
Ochre—
 Alicante, 13 brls. 500 sks.
 Marseilles, 116
Oxalic Acid—
 Rotterdam, 8 cks.
Paint—
 Philadelphia, 1 brl.
 Boston, 25 cs.
 Colon, 4 kgs.
 Boston, 35 A. W. Smith & Co.
Paraffin Scale—
 Baltimore, 100 brls.
 New York, 1,129 Thompson & Bedford
Paraffin Wax—
 New York, 10 cs. J. Matheson & Co.
Phosphates—
 Ghent, 4,500 bgs.
Phosphoric Acid—
 Bremen, 15 cks.
Potassium Chlorate—
 Marseilles, 16 brls.
Pyrites—
 Huelva, 1,266 t.
 1,594 Matheson & Co.
Rosin—
 Savannah, 7,656 brls.
Saltpetre—
 Hamburg, 2 brls. 10 kgs.
 Bombay, 2,262 bgs. Ralli Brs.
Sheep Dip—
 New York, 50 bdls.
Soap—
 Hamburg, 1 cs.
 Boston, 17 Boot's Pure Drug Co.
 Marseilles, 40
 Rotterdam, 2
Soapstone—
 Philadelphia, 100 bgs.
 Bordeaux, 301 G. G. Blackwell, Sons & Co.
 200
Starch—
 Baltimore, 21 sks.
 Bremen, 4 cs.
 Newport News, 1,600 bgs.
 Amsterdam, 6 bxs.
 Hamburg, 364
 Antwerp, 440
 Boston, 500
 Norfolk Va., 80 400
 Rotterdam, 80
Sulphur—
 Iquique, 20 sks. W. Newton
Tallow—
 B. Ayres, 837 cks.
 Rotterdam, 1 1 brl.
Tartar—
 Rotterdam, 1 ck.
Treacle—
 Boston, 500 brls.
Varnish—
 Rotterdam, 2 cks.
White Lead—
 Antwerp, 24 cks.
 Rotterdam, 97
Wood Pulp—
 Oporto, 500 bls.
 Boston, 430 bdls. Spicer Brs., Ltd.
 Rotterdam, 443
Zinc White—
 Rotterdam, 25 cks.

MANCHESTER

Week ending February 27th.

Albumen—
 Hamburg, 1 ck.
Alizarine—
 Rotterdam, 45 cks. 12 brls.
Aluminium—
 New York, 268 bxs. 163 pks.
Ammonia—
 Rotterdam, 50 cs.
Ammonia Salt—
 Antwerp, 5 cks.
Ammonium Chloride—
 Treport, 4 cs. J. Harrison
Aniline Colours—
 Rotterdam, 13 bxs. 31 brls.

Antimony Salt—
 Rotterdam, 14 cks.
Asbestos—
 Rotterdam, 17 crts.
Barytes—
 Hamburg, 6 cks.
Chemicals (otherwise undscribed)
 Rouen, 24 cks. Co-op. W'sale Society
 Rotterdam, 16
 Hamburg, 5 cs.
Colours—
 Rotterdam, 18 cks. 23 cs. 3 brls.
 6 bxs.
 Boulogne, 5
 Ghent, 5 2
 Hamburg, 5
Copper Sulphate—
 Rotterdam, 1 ck.
Cream of Tartar—
 Rotterdam, 2 cks.
Creosote Salt—
 Rotterdam, 4 cks.
Farina—
 Hamburg, 40 bgs.
Glucose—
 New York, 250 brls. T. M. Duche & Sons
 250
Glue—
 Rouen, 4 cks. Co-op. W'sale Society
 Rotterdam, 20 bgs. 5 cs.
 Antwerp, 4 brls. 10 bls.
 Hamburg, 20 bgs. 50
 Treport, 5 cks. J. Harrison
Limestone—
 Antwerp, 1 crt. J. T. Fletcher & Co.
 3 cs.
Litharge—
 Rotterdam, 27 cks.
Logwood—
 Progresso, 471 t.
 Grande Salines, 350
Ochre—
 Rouen, 15 cks. Co-op. W'sale Society, Ltd.
 Treport, 37 W. Harrison & Co.
Oxalic Acid—
 Rotterdam, 9 cks.
Phosphate—
 Rotterdam, 19 cks.
Potash—
 Hamburg, 10 cks. 32 dms.
 Treport, 8 dms. J. Harrison
Potassium Permanganate—
 Rotterdam, 5 cks.
Pyrites—
 Huelva, 1,895 t.
Sodium Nitrate—
 Rotterdam, 8 cks.
Starch—
 Antwerp, 100 bgs. 374 cs.
 Hamburg, 652 144 T. M. Duche & Sons
 New York, 2,097
Stearine—
 Rotterdam, 14 bgs.
Tallow—
 Hamburg, 75 tcs.
Tannic Acid—
 Hamburg, 7 cks.
Tar Waste—
 Rotterdam, 7 cks.
Tartar—
 Rotterdam, 18 cks.
Tartaric Acid—
 Rotterdam, 18 cks. 25 kgs.
Tolidine Salt—
 Antwerp, 2 cks. J. T. Fletcher & Co.
White Lead—
 Rotterdam, 9 cks.
Wood Pulp—
 Drontheim, 1,350 t. W. Gallagher & Son
 Skien, 3,400 bls.
 Rotterdam, 178 480 pks.
 Sannesund, 1,250
 New York, 240 bdls. Christie & Co.
Zinc Oxide—
 Rotterdam, 75 brls.
Zinc White—
 Rotterdam, 5 cks.

HULL.*Week ending February 27th.*

Asbestos — Antwerp, 1 cs. Wilson, Sons, & Co., Ld.	Barytes — Amsterdam, 50 bgs. Hutchinson & Son 41 cks. A. Sanderson & Co. Antwerp, 87 Blundell, Spence, & Co. " 11 Gibson Bros.	Bone Meal — Bombay, 3,795 bgs.	Chemicals (otherwise undescribed) New York, 2 dms. Wilson, Sons, & Co., Ld. Bremen, 1 ck. Veltmann & Co. Antwerp, 78 pks. Wilson, Sons, & Co., Ld. Dunkirk, 5 cks. "	Cod Oil — Drontheim, 5 brls. Wilson, Sons, & Co., Ld.	Colours — New York, 60 brls. Story, Witty, & Co. Christiania, 3 pks. W. & C. L. Ringrose Rotterdam, 25 cks. 18 cs. Dunkirk, 13 "	Cottonseed Oil — New York, 510 brls. Wilson, Sons, & Co., Ld.	Dyestuffs — Alizarine Rotterdam, 3 cks. W. & C. L. Ringrose Argols Bordeaux, 330 bgs. Wilson, Sons, & Co., Ld. " 55 cs. Rawson & Robinson " 30 bgs. Extracts New York, 50 bxs. Myrabolams Bombay, 4,083 bgs. Tanners' Bari Ghent, 130 bgs. Hutchinson & Son Valonia Smyrna, 2,147 bgs. 192 t. Farina — Stettin, 131 bgs. Wilson, Sons, & Co., Ld. " 100 "	Gelatine — Rotterdam, 2 cs. Wilson, Sons, & Co., Ld.	Glucose — Rotterdam, 50 bgs. Hutchinson & Son New York, 200 brls. Wilson, Sons, & Co., Ld. New York, 300 3,750 bgs.	Glue — Christiansund, 2 brls. Wilson, Sons, & Co., Ld. Antwerp, 9 cks. Bailey & Leatham Hamburg, 25 bgs. Stettin, 20 cks. Dunkirk, 29 Wilson, Sons, & Co., Ld.	Lead Acetate — Hamburg, 4 cks. Wilson, Sons, & Co., Ld. Stettin, 29 "	Linseed Oil — Christiania, 1 brl. Wilson, Sons, & Co., Ld. " 1 cs. Bailey & Leatham	Nickel Salt — Rotterdam, 1 ck. W. & C. L. Ringrose	Paint — New York, 74 cs. Wilson, Sons, & Co., Ld. " 1 lb. "	Phosphate — Ghent, 130 t. Dunkirk, 2,900 bgs. Wilson, Sons, & Co., Ld. Rotterdam, 10 W. & C. L. Ringrose	Pitch — Hamburg, 30 brls. H. F. Pudsey
--	---	--	---	---	---	---	--	--	---	--	--	--	--	--	--	--

Potash — Dunkirk, 40 dms. Wilson, Sons, & Co., Ld.	Pumice Stone — Rotterdam, 5 cs. Hutchinson & Son	Rosin — Bordeaux, 8 cks. Sissons Bros. & Co.	Saltpetre — Hamburg, 100 cks. Wilson, Sons, & Co., Ld.	Soap — New York, 3 cs. Wilson, Sons, & Co., Ld. " 500 bxs. Amsterdam, 1 ck. Wright, Dyer, & Co. Rotterdam, 100 cs. Wilson, Sons, & Co., Ld.	Starch — Rotterdam, 33 cs. Hutchinson & Son Ghent, 54 Wilson, Sons, & Co., Ld. Antwerp, 152 Bailey & Leatham Bremen, 1,469 Veltmann & Co.	Tallow — New York, 60 tcs. Wilson, Sons, & Co., Ld. " 12 brls.	Tartar — Bordeaux, 10 cks. Rawson & Robinson	Tartaric Acid — Rotterdam, 2 cks. W. & C. L. Ringrose	Treacle — New York, 2,185 brls. Wilson, Sons, & Co., Ld.	Turpentine — Bordeaux, 64 brls. Rawson & Robinson	Ultramarine — Amsterdam, 14 cks.	Yarnish — New York, 48 pks. Wilson, Sons, & Co., Ld. Rotterdam, 30 brls. Hutchinson & Son " 1 cs.	Waste Salt — Hamburg, 101 bgs.	White Lead — Amsterdam, 50 cks. Hutchinson & Son Rotterdam, 60 " W. & C. L. Ringrose Amsterdam, 24 " W. & C. L. Ringrose Rotterdam, 21 "	Zinc Oxide — Antwerp, 10 brls. Wilson, Sons, & Co., Ld.	Zinc White — Rotterdam, 5 cks. Hutchinson & Son " 10 W. & C. L. Ringrose
--	--	--	--	--	--	---	--	---	--	---	--	---	--	---	---	---

GLASGOW.*Week ending March 4th.*

Barium Sulphate — Antwerp, 100 bgs.	Barytes — Rotterdam, 189 cks. J. Rankine & Son Hamburg, 2 20 bgs.	Bone Meal — Bombay, 3,000 bgs.	Castor Oil — Leghorn, 5 cs.	Colours — Antwerp, 1 ck. J. Rankine & Son Rotterdam, 1 63 pks.	Dyestuffs — Alizarine Rotterdam, 12 cks. 1 cs. Aniline Rotterdam, 2 brls. 7 cs. Argols Bordeaux, 27 cks. 131 bgs. Logwood Cape Haytien, 530 t. M'Arthur, Scott & Co.	Shumac Palermo, 870 bgs. 100 bls.	Farina — Hamburg, 400 bgs.
---	--	--	---------------------------------------	---	---	---	--------------------------------------

French Chalk — Fiume, 200 bgs. P. M'Intosh & Sons " 100 "	Glucose — New York, 350 brls.	Glue — Rotterdam, 20 bgs. Rankine & Son Naples, 60 19 cks. Antwerp, 2 brls. Fiume, 100 bls.	Mineral White — Genoa, 100 bgs.	Naphthol — Hamburg, 2 cks.	Paraffin Wax — Baltimore, 100 brls.	Phosphorus — Baltimore, 5 cs.	Pitch — Amsterdam, 13 cks.	Plumbago — Genoa, 400 bgs.	Potash — Rotterdam, 32 cks. Rankine & Son Hamburg, 80 dms.	Pumice Stone — Leghorn, 18 cs.	Pyrites — Huelva, 1,677 t. Tharsis Co	Rosin — New York, 1,686 brls.	Salicylic Acid — Hamburg, 1 cs.	Salt — Hamburg, 50 bgs.	Saltpetre — Hamburg, 24 cks.	Soap — Nantes, 2 cks. Fiume, 182 cs. Newport News, 80 brls.	Starch — Ghent, 5 cs. J. Rankine & Son Rotterdam, 16 cts. Fiume, 42 bgs. Newport News, 100 "	Stearine — Amsterdam, 62 bgs. Rotterdam, 17 cks. J. Rankine & Son	Sulphur — Catania, 1,390 bgs. 18 cks.	Tartar — Bordeaux, 10 cks.	Tin Oxide — Rotterdam, 5 cks.	Treacle — New York, 200 brls. Waddell & Bryson " 100 "	Yarnish — Antwerp, 1 cs.	Waste Salt — Hamburg, 137 cks.	White Lead — Rotterdam, 88 cks. J. Rankine & Son	Wood Pulp — Hamburg, 150 bls. Christiania, 1,441 10 cs.	Zinc White — Rotterdam, 25 cks. Rankine & Son " 25 "
--	---	--	---	--------------------------------------	---	---	--------------------------------------	--------------------------------------	---	--	---	---	---	-----------------------------------	--	---	---	--	---	--------------------------------------	---	---	------------------------------------	--	--	--	---

TYNE.*Week ending February 27th.*

Alum Earth — Hamburg, 22 cks. 17 cs. Tyne S. S. Co.	Barium Chlorate — Rotterdam, 700 bgs.	Barytes — Rotterdam, 134 bgs. Tyne S. S. Co. Antwerp, 120 "	Cod Oil — Drontheim, 7 brls. Bergen, 7 "
---	---	--	---

Colours — Hamburg, 9 cks. 6 cs. S. S.	Limestone — Antwerp, 9 cts. Tyne S. S.	Litharge — Gothenburg, 1 ck.	Starch — Rotterdam, 124 cs. Tyne S. S.	Tar — Hamburg, 1 tin Tyne S. S.	Varnish — Antwerp, 5 kgs. Tyne S. S.	Wood Pulp — Christiania, 200 bls. Laurvig, 550 Arendal, 1,600 Forsgrund, 1,600 Christoph. Andrews, P. H. Math.
---	--	--	--	---	--	---

Zinc Sulphate — Gothenburg, 1 cs.

GOOLE.*Week ending February 27th.*

Alizarine — Rotterdam, 261 cks. 11 cs.	Alkali — Calais, 14 cks.	Aniline — Hamburg, 5 cks. Amsterdam, 2 "	Chemicals (otherwise undescribed) Hamburg, 2 cs.	Colours — Rotterdam, 2 cks. 3 cs. Hamburg, 20 "	Dyestuffs (otherwise undescribed) Rotterdam, 431 cks. 75 cs. 5 pks. Boulogne, 24 1 25	Fustic — Jamaica, 359 t.	Lead Acetate — Hamburg, 14 cks.	Logwood — Laguna de Terminos, 200 t. Belize, 207	Madder — Rotterdam, 1 ck.	Plumbago — Boulogne, 1 ck.	Potash — Calais, 10 dms.	Pyrites — Huelva, 200 t.	Saltpetre — Rotterdam, 100 bgs. Hamburg, 75 cks.	Starch — Ghent, 79 cs.	Tartar — Rotterdam, 7 cks.
--	------------------------------------	---	--	--	--	------------------------------------	---	---	-------------------------------------	--------------------------------------	------------------------------------	------------------------------------	---	----------------------------------	--------------------------------------

GRIMSBY.*Week ending February 27th.*

Albumen — Hamburg, 9 cks.	Caoutchouc — Antwerp, 7 cs.	Carbolic Acid — Rotterdam, 10 cks.	Chemicals (otherwise undescribed) Hamburg, 5 cks. 6 cs.	Colours — Hamburg, 32 cks. 15 cs. 37 pks. Antwerp, 27 43 12	Farina — Hamburg, 3 cs.	Pitch — Hamburg, 80 cks.	Plumbago — Hamburg, 34 cks.	Starch — Antwerp, 8 cs. 1
-------------------------------------	---------------------------------------	--	---	--	-----------------------------------	------------------------------------	---------------------------------------	-------------------------------------

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 3rd.

Bay, 20 cs.	£57
N.B., 13 c.	£23
ne, 2 t.	£63
a— 1 t. 3 c.	£22
um Carbonate— 10 c.	£8
um Chloride— 1 t. 1 c.	£32
um Sulphate— 1 t. 16 c.	£2,570
ous Phosphorus— 2 cs.	£14
nde do Sul, 12 c.	£17
ite of Lime— 17 c.	£16
Acid— 11 c.	£13
on, 50 kgs.	£52
ma, 150 cks.	£516
ay, 3 cs.	44
am, 4 20 drs.	22
am, 48 brls.	230
am, 25	14
Soda— 9 c.	£16
arch, 20 t.	178
le, 67	616
phia, 2 10	71
me, 4 2	98
ay, 6 6	60
etta, 4 6	60
als (otherwise undes.)— 1 ck. 2 cs.	£22
5, 4	16
4, 1	66
9, 1 40 dms.	42
6, 9 15 kgs.	119
ton, 2 4	28
9, 2 2	10
u. N.B., 1	24
am, 12 kgs.	£72
30 10 c.	215
rg, 20 10 cks.	462
20 115	13
ny, 2 cs.	13
ad, 3 t. 10	413
agen, 1 10	170
ny, 2	72
ny, 3	18
also, 2 kgs.	12
ly, 5 brls.	173
ay, 1	115
roducts—	
arine	
ine 3 cks.	£60
in, 3 cs.	£119
ine Dyes 1 cs.	£24
ta, 3	19
ine Oil 20 drs.	£900
col 20 puns.	£305
ie, 12 drs.	285
dam, 39 19 90 cks.	1,615
note Oil 130 brls.	£75
ad, 30 cs.	£260
in, 1	28
th 60 brls.	£19
py, 303 t. 10 c.	560
uzen, 250 cs.	300
4, 100 trcs.	160
4, 100 brls.	£53
res, 74 dms.	14
and Pitch 60 dms. 5 crts.	£17
roducts (otherwise undes.)— 30 brls.	£31

Copper Sulphate—

Genoa, 62 t.	£1,116
Cream of Tartar—	
Wellington, 3 kgs 8 c.	£44
Melbourne, 1 t.	81
Disinfectants—	
Kurrachee, 67 cs.	£88
Antwerp, 15 cks.	75
Hong Kong, 15 c.	8
Bombay, 420 dms. 67	8
Melbourne, 10	20
Sydney, 18	104
Colombo, 2	14
Penang, 1 t. 3	30
Hamburg, 30 drs.	19
Dried Blood—	
Dunkirk, 28 t. 14 c.	£140
Manure—	
Trinidad, 382 t. 16 c.	£1,850
Nitric Acid—	
Jersey, 14 carboys	£98
Phosphorus—	
Santa Cruz de Tenerife, 4 cs.	£44
Dunedin, 11	98
Calcutta, 2	26
Potash—	
Dusseldorf, 10 c.	£20
Potash Crystals—	
Philadelphia, 3 cks.	£25
Potassium Bicarbonate—	
Yokohama, 10 c.	£14
Potassium Chlorate—	
Rio Grande do Sul, 1 t. 5 c.	£56
Potassium Cyanide—	
Algoa Bay, 10 t.	£770
Delagoa Bay, 10 c.	45
Salicylic Acid—	
Sydney, 4 cs.	£68
Saltpetre—	
Christchurch, 1 t.	£22
Santos, 5 6 c.	114
Rio de Janeiro, 8 12	185
Melbourne, 2	43
Dunedin, 10	11
Hobart, 10	12
Algoa Bay, 2 13	62
Sheep Dip—	
Calcutta, 80 dms.	£50
Algoa Bay, 25 t. 9 c. 1,594	1,390
Soda Crystals—	
Delagoa Bay, 1 t. 18 c.	£11
Algoa Bay, 12 11	32
Sodium Bicarbonate—	
Dunedin, 1 t.	£7
Cape Town, 1	10
Sodium Carbonate—	
Johannesburg, 10 c.	£16
Sodium Sulphate—	
Ghent, 110 t.	£165
Sulphur—	
Natal, 11 c.	£5
Algoa Bay, 8 t. 19	100
Mossel Bay, 500 kgs.	249
Sulphuric Acid—	
Penang, 25 cs.	£17
Tartaric Acid—	
Wellington, 3 c.	£18
Christchurch, 2	13
Varna, 3	16

LIVERPOOL.

Week ending March 3rd.

Alum—	
Galatz, 5 t. 2 c. 3 q.	£30
Cape Town, 3 15	18
Bari, 1 5 1	6
Beyrouth, 2 19	14
Brisbane, 1	6
Melbourne, 5 1	23
Ammonia—	
Akassa, 10 cs.	£15
Ammonium Carbonate—	
Hamburg, 4 c. 2 q.	£7
Odessa, 13 t.	364
Marseilles, 14 3	7
Vera Cruz, 4	15
New York, 8	61
Genoa, 2	17
Rangoon, 17 1	28
Rotterdam, 9	13
Ammonium Chloride—	
Philadelphia, 20 t. 16 c. 1 q.	£435
Smyrna, 5 brls.	25
Alexandria, 3	96

Beyrouth, 6	10
Genoa, 13 9	228
Galatz, 2 7	81
Ammonium Sulphate—	
Dunkirk, 57 t. 14 c. 3 q.	£440
Samarang, 99 3	741
Norfolk, Va., 25	206
Honolulu, 20	160
Teneriffe, 20 11 2	165
Rotterdam, 2	17
Gd. Canary, 27 9 2	214
Genoa, 20 14	170
Philadelphia, 51 14	400
Valencia, 280 2	2,247
Ammonium Chlorate—	
Bremen, 1 t.	£71
Bleaching Powder—	
Ancona, 20 brls.	
Baltimore, 102 cks.	
Bilbao, 5	
Bombay, 17 bxs.	52 cs.
Boston, 954	
Genoa, 10	
Leghorn, 25	
Naples, 14	
Newport News, 340	
New York, 301 50	
Philadelphia, 27	
Portland, M., 5	
Rio de Janeiro, 10	
Rouen, 15	
San Sebastian, 60	
Seville, 6	
Vera Cruz, 36	
Boracic Acid—	
Adelaide, 4 c. 3 q.	£8
Borax—	
Antwerp, 5 t. 14 c.	£112
Amsterdam, 1 17	38
Trieste, 1	20
Bremen, 13 14 3 q.	£273
Rotterdam, 10 11 2	100
Genoa, 2 1 3	31
Savannah, 4 5	5
Stettin, 1 1 3	22
Ghent, 11 2	12
B. Ayres, 19 3	20
Hamburg, 4 17 2	94
Montreal, 5	78
Calcium Chloride—	
Odessa, 10 t. 4 c.	£31
Hong Kong, 10 15	25
B. Ayres, 4 8	10
Carbolic Acid—	
Hamburg, 10 c.	£36
Ghent, 2 t.	22
Shanghai, 1 7 3 q.	98
Santander, 1 19 1	140
Rotterdam, 14	607
Newport News, 11 8	600
Caustic Potash—	
Genoa, 1 t.	£27
Melbourne, 7 c.	10
Caustic Soda—	
Aleppo, 4 cks.	
Alexandria, 99 dms.	
Algoa Bay, 7	
Alicante, 30 brls.	
Amsterdam, 100	
Antwerp, 35	
Bahia, 25	
Baltimore, 100	
Barcelona, 340	
Bilbao, 340	
Boston, 21 154	
B. Ayres, 120	
Cartagena (Sp.), 19	
Catania, 35	
E. London, 10 bxs.	
Galatz, 132	
Genoa, 100	
Halifax, 10	
Hamburg, 55	
Havre, 25	
Hong Kong, 105	
Lisbon, 71	
Malaga, 60 30	
Melbourne, 171	
Messina, 35	
M. Video, 30	
Naples, 34	
New York, 273	
Odessa, 221	
Para, 80	
Pernambuco, 18	
Penang, 10	
Philadelphia, 550	
Rotterdam, 71 30 cks.	
Samarang, 10	
San Sebastian, 60	
Santander, 100	

Santos, 130	
Seville, 236	
Shanghai, 35	
Smyrna, 250 bgs.	
Sydney, 17	
Teneriffe, 4	
Trieste, 23	
Valencia, 30	
Valparaiso, 25	
Vera Cruz, 25	
Yokohama, 150	
Chemicals (otherwise undescribed)	
Antwerp, 1 t. 7 c.	£44
Limassol, 4	6
Calcutta, 58 2	155
Brisbane, 5	7
Lisbon, 1 13	17
Bremen, 12	18
Boston, 42 15	356
Philadelphia, 13 5	410
Naples, 5 cks.	
New York, 3	
China Clay—	
Boston, 2,257 cks.	
Portland, M., 100	
Rio de Janeiro, 56 30 cs.	
Bilbao, 101 bgs.	
Chromium Oxide—	
Antwerp, 10 c.	£32
Citric Acid—	
Vancouver, 1 c.	£7
Calcutta, 2	12
Coal Products—	
Aniline Colours—	
New York, 11 cks. 1 kg.	
Tokio, 2 cs.	
Aniline Oil—	
Newport News, 10 dms.	
Aniline Salts—	
New York, 30 cks.	
Portland, M., 8 cs.	
Anthracene—	
Rotterdam, 75 cks.	
Cresote Oil—	
Lisbon, 300 brls.	
Naphtha—	
Melbourne, 400 dms.	
Pitch—	
Galatz, 55 brls.	
Ibrail, 5	
St. Louis du Rhone, 600 t.	
Tar—	
Batavia, 60 brls.	
Coal Products (otherwise undes.)—	
Bombay, 5 cs.	
Boston, 58 5 dms.	
Copper Sulphate—	
B. Ayres, 2 t. 10 c. 1 q.	£41
San Sebastian, 1 18 2	32
Vigo, 18 3	16
Catania, 5 4	99
Fiume, 13 2	217
Trieste, 5 1	78
Philippeville, 9 17	183
Beyrouth, 1 3	19
Genoa, 107	1,700
Venice, 78 10 2	1,362
Paris, 82 12 3	1,372
Cette, 213 9 2	3,699
Nantes, 24 18 3	429
Ancona, 30 6	498
Leghorn, 134 7	2,150
Bordeaux, 492 11 3	8,473
Lisbon, 92 3 1	1,930
Oporto, 26 2 3	417
Algiers, 49 5 1	746
Naples, 71 6 3	1,146
Marseilles, 64 19	2,153
Rouen, 9 17	275
Antwerp, 20 2	322
Copperas—	
Beyrouth, 2 t. 4 c. 2 q.	£4
Smyrna, 4	8
Corrosive Sublimate—	
Alexandria, 1 c.	£14
Guano—	
Malaga, 20 t.	£165
Seville, 1 16 c.	16
Tarragona, 20	150
Gypsum—	
Oporto, 10 t. 1 c. 3 q.	£24
Iron Oxide—	
Antwerp, 11 c. 2 q.	£30
Genoa, 5 t. 8	44
Lime—	
Antigua, 8 t. 7 c.	£9
Magnesia—	
M. Video, 1 c. 2 q.	£41
Magnesium Sulphate—	
St. Nazaire, 4 cks.	

Manure			Portland, M., 25			Trieste, 100			Verdigris —		
Seville, 50 t.		£244	Port Natal, 120			Victoria, W.C., 5			Higo, 6 c.		
St. Malo, 135	4 c.	1 q.	Rangoon, 560			Yokohama, 415			White Lead —		
Cherbourg, 10	1		Rio de Janeiro, 2	13					Vera Cruz, 0 kgs.		
Havre, 20		110	Rotterdam, 100			Soda Crystals —			Zinc Chloride —		
Las Palmas, 75		300	St. John, N.B., 341			Boston, 150 bgs.	532 cks.		Bilbao, 2 t. 5 c.	34	
Bordeaux, 12	1	3	Salt Pond, 3	15		Calcutta, 65 kgs.					
Muriatic Acid —			Sapeli, 12	10		Halifax, 41					
Pernambuco, 12 c.		£8	Savannah, 604			Kingston, 50	50	20			
Oxalic Acid —			Sherbro, 19	17		Malaga, 50		30			
Philadelphia, 3 t. 5 c.		£100	Sierra Leone, 300			Malta, 67		490			
Boston, 5	14	185	Sinoe, 37	10		M. Video, 20		27			
Paint —			Sydney, 75			Piree, 100					
Alexandria, 130 kgs. 10 dms.		20	Valparaiso, 1,515			Portland, Me., 20					
Axini, 13 cks.	322		Salt Cake —			Valparaiso, 100					
Bombay, 106	4 c.	£45	Leghorn, 30 t.		184	Sodium Bicarbonate —					
Bordeaux, 3 bxs.			Naples, 20		31	Alexandria, 60 brls.	4 cks.				
Callao, 342 cs.	10		New York, 4	12	79	Algoa Bay, 7 kgs.					
Gibraltar, 9			Saltpetre —			Alicante, 152					
Havana, 10			10 t. 14 c.	2 q.	£232	Antwerp, 176	50 pks.	13			
La Union, 8			Sheep Dip —			Barcelona, 275					
New York, 2	75		Calcutta, 1 t. 2 c.		£20	Bombay, 360					
Old Calabar, 3 tins			Sydney, 19	10	668	Bordeaux, 30					
Para, 1 brl.	1		Soap —			Boston, 200					
Pt. Elizabeth, 12			Alexandria, 2 bxs. 1 brl.			B. Ayres, 25 bgs.	10				
Rangoon, 2	5	20	Algoa Bay, 780	70 cs.		Calcutta, 760	7				
St. John, N.B., 2			Baltimore, 30			Cape Town, 8					
San Juan, 7			Barbadoes, 562		2	Colombo, 4					
Savanna, 2	75	13 brls.	Boston, 63		1,500	Delagoa Bay, 10		36			
Smyrna, 2	25		Calcutta, 63			Genoa, 160					
Tripoli (Syria), 70	20	20 pks.	Cape Town, 701			Ghent, 14					
Venice, 7			Constantinople, 200		20	Hamburg, 80		20			
Victoria, B.C., 6			Curacao, 288			Higo, 1,200					
Vera Cruz, 50	23 cs.		Delagoa Bay, 825	62 bdl.	20	Karachi, 30					
Painters' Colours —			Drewin, 125			Kingston, 30					
Alexandria, 90 kgs. 1 cs.			E. London, 1,152			Lisbon, 50					
Antwerp, 2 tins	11 cks.	41	Elmina, 40			Marseilles, 90					
Bombay, 20			Genoa, 260			Melbourne, 795	50	14			
B. Ayres, 5 bxs.	40	105	Gibraltar, 212			M. Video, 100					
Oporto, 10			Guayaquil, 300		1	Nagasaki, 356					
Progresso, 4 brls.	10 dms.		Hamburg, 203			Nantes, 18					
Rangoon, 2 brls.			Kingston, 270			Naples, 150					
Santander, 2 brls.			Karachi, 500			Odesa, 930					
Santos, 79			Manaos, 600			Pt. Elizabeth, 21					
Paraffin Wax —			Marseilles, 15			Pt. Natal, 20		6			
Bari, 8 bgs.			Monrovia, 32			Rangoon, 25					
Genoa, 12			New York, 306	4	1,057	Rio de Janeiro, 20					
Odessa, 20 cs.			Old Calabar, 240			Santos, 150					
Palermo, 5			Opobo, 2,240			Singapore, 20 pks.	13				
Rio de Janeiro, 1			Para, 400			Stettin, 25					
Smyrna, 20			Pernambuco, 10 cks.			Sydney, 100					
Venice, 10			Philadelphia, 2,600			Trieste, 50					
Vera Cruz, 210			Pt. Elizabeth, 750		65	Vancouver, 100					
Phosphorus —			Pt. Natal, 1,465	40 dms.	20	Yarna, 30					
Vera Cruz, 3 c.		£33	Quittah, 100			Yokohama, 1,000					
Yokohama, 10		130	Rangoon, 100			Sodium Carbonate —					
Potassium Bichromate —			Rotterdam, 10 brls.	408		Antwerp, 50 brls.					
Vera Cruz, 1 t. 4 c.		£50	Rufisque, 40			Boston, 196					
Constantinople, 5		210	Salt Pond, 50			Calcutta, 28					
Potassium Chlorate —			San Fernando, 500		200 pks.	New York, 56					
Vera Cruz, 1 t. 15 c.		£70	San Jose Del Sur, 200			Sodium Chlorate —					
Pernambuco, 1	10	60	Santos, 1			Rotterdam, 122 kgs.					
Havana, 1	10	5	Savanna, 2,935			Sodium Hyposulphite —					
Rio de Janeiro, 8	10	75	Shanghai, 2,935			Sydney, 60 kgs.					
Cartagena, Sp., 1		36	Sierra Leone, 1,555			Sodium Prussiate —					
Osaka, 5		168	Singapore, 2,000			Boston, 24 cks.					
Rotterdam, 4		7	Sourabaya, 2,000		3,500	Sodium Silicate —					
Genoa, 1		34	Sydney, 1,600			Cartagena, Sp., 20 brls.					
Ghent, 1		34	Trinidad, 250	16 pks.		Sodium Tartrate —					
New York, 16	5	548	Valparaiso, 250			Oporto, 1 kg. 2 brls.					
Higo, 25		878	Venice, 20			Sulphur —					
Hamburg, 9	7	386	Soda Alkali —			Jeddah, 4 t. 1 c.		£25			
Naples, 1	15	58	Lisbon, 95 brls.			Ghent, 1	4	1 q.			
Sydney, 6	10	220	New York, 40			Savanna, 2					
Philadelphia, 17	10	541	Zante, 32			Boston, 150	6	638			
Potassium Cyanide —			Soda Ash —			Sulphuric Acid —					
Vera Cruz, 4 c.		£39	Adelaide, 600 bgs.		67 cks.	Pernambuco, 19 c.		£16			
Potassium Prussiate—			Antwerp, 1,752	185 cs.		Superphosphates —					
Leghorn, 10 c.		£25	Batavia, 59 brls.			Nantes, 165 t.	8 c.	3 q.	£499		
Constantinople, 4		11	Bombay, 1,200	35 tcs.	137	Valencia, 10			15		
Salt —			B. Ayres, 100 brls.			St. Malo, 316	3	1	652		
Abonneima, 80 t. 7 c.			Calcutta, 100 kgs.	100		Cherbourg, 500	2		1,125		
Antwerp, 65			Genoa, 200 bgs.	40		Havre, 120	2		268		
Bakana, 79	3		Ghent, 600			Genoa, 145	7		376		
Baltimore, 74			Halifax, 80			Gd. Canary, 5			17		
Bilbao, 2	19		Hamburg, 1,600			Alicante, 10			73		
Boston, 476			Higo, 369			Passages, 12	2		42		
B. Ayres, 85	14		Libau, 800			Tartaric Acid —					
Calcutta, 5,458			Melbourne, 759			Vancouver City, 3 c.		£20			
Conakry, 68	10		Naples, 150			Calcutta, 2		12			
Egwanga, 50	4		N. Orleans, 32 tcs.			Tin Crystals —					
Ghent, 117			New York, 5,194	114	25	Portland, 1 t. 1 c.		£45			
Gd. Bassa, 9	19		Oporto, 17		10	Tin Oxide —					
Kingston, 17	17		Philadelphia, 6,240	552	34	Acajutla, 1 c.		£6			
Loango, 82	16		Piræus, 25 brls.			Varnish —					
Manaca, 5			Pt. Natal, 40 kgs.			Accra, 6 cks.	1 cs.				
Monrovia, 9	16		Rio de Janeiro, 150			Genoa, 3 dms.					
Newcastle, 150			Rotterdam, 460 bgs.		7	Old Calabar, 2					
N. Orleans, 131	5		Santos, 25			Pernambuco, 2					
New York, 294			Smyrna, 10			Santander, 6 brls.					
Old Calabar, 130	11										
Opobo, 105	7										

MANCHESTER

Week ending March 3rd

Alum—

Bussorah, 25 brls.

Ammonium Chloride—

Bagdad, 40 brls.

Aniline Colours—

Rotterdam, 2 cks. 1 cs. 7 k.

Aniline Oil—

Hamburg, 2 bxs. 3

Aniline Salts—

Antwerp, 1 dm.

Bleaching Powder—

Hamburg, 5

Carbolic Acid—

Rouen, 2

Chemicals—

Rouen, 3 cks.

Copperas—

Antwerp, 20

Cottonseed Oil—

Beyrouth, 25 brls.

Creosote—

Djerba, 15 brls.

Dyestuffs (otherwise unde r)

Tunis, 50

Glue—

Beyrouth, 1 kg.

Linseed Oil—

Barcelona, 14 cks.

Mineral White—

Alexandretta, 11 brls.

Naphtha—

Rio de Janeiro, 12 bgs.

Naphthaline—

Trepot, 52 cks.

Naphthol Salts—

Antwerp, 1 ck.

Painters' Colours—

Rotterdam, 23 cks.

Salt Cake—

Bombay, 6 kgs.

Soap—

Antwerp, 47 t. 15 c.

Soda—

Bussorah, 75 pks.

Sodium Bicarbonate—

Bagdad, 300 bxs.

Sodium Hyposulphite—

Bushire, 1 cs.

Sulphuric Acid—

Rio de Janeiro, 2 brls.

Tallow—

Alexandretta, 1 brl.

Tar Oil—

Rotterdam, 5 cks.

Tar Salts—

Antwerp, 10 dms.

Toluol—

Copenhagen, 162 bgs.

Turpentine—

Hamburg, 47 cks.

Varnish—

Alexandria, 6 brls. 201

Zinc Chloride—

Barcelona, 7 cks.

Zinc White—

Bombay, 5 cks.

HULL.

Week ending February 2

Ammonium Sulphate—

Copenhagen, 1,500 bgs.

Dunkirk, 135

Ghent, 8,000

Chemicals (otherwise undescribed)

Amsterdam,	48 cks.
Bergen,	363 slbs.
Copenhagen,	23 45 pks.
Christiania,	1,871 20
Constantinople,	10 1 cs.
Drontheim,	2 367 slbs.
Danzig,	2 cs. 11
Gothenburg,	10 36 10
Hamburg,	3 112 6
Hango,	
New York,	25
Odessa,	343
Reval,	4
Rotterdam,	5 112

Cottonseed Oil -

Amsterdam,	2,245 c.
Antwerp,	310
Bremen,	117
Copenhagen,	60
Christiania,	95
Dunkirk,	420
Gothenburg,	110
Hamburg,	351
Rotterdam,	691
Stavanger,	48

Dyestuffs (otherwise undescribed)

Christiania,	2 cks.
Danzig,	2 1 cs.

Glue -

Ghent,	2 cks.
Hamburg,	3 bgs.

Guano -

Dunkirk,	55 t.
----------	-------

Linseed Oil -

Antwerp,	7 c.
Bergen,	39
Christiansund,	156
Christiania,	145
Constantinople,	17
Drontheim,	102
Hamburg,	100
Aalesund,	29
Rotterdam,	88
Stavanger,	14

Manure -

Dunkirk,	91 t.
----------	-------

Ochre -

Hamburg,	2 cks.
----------	--------

Painters' Colours -

Amsterdam,	50 cks.
Aalesund,	40 pks.
Antwerp,	16 1 cs. 97 8 dms.

Bergen,	1 80
Copenhagen,	22 11
Christiania,	21 1 100
Constantinople,	4
Drontheim,	3
Danzig,	1
Dunkirk,	2
Gothenburg,	4 230
Ghent,	21
Hamburg,	1 2 1
New York,	65
Odessa,	181
Reval,	1
Rotterdam,	33 50
Stavanger,	104

Pitch -

Antwerp,	350 t.
----------	--------

Rosin -

Hango,	4 cks.
--------	--------

Salt -

Calcutta,	860 t.
-----------	--------

Soap -

Christiania,	1 cs.
Drontheim,	2
Gothenburg,	1
Ghent,	100
Hamburg,	5

Tallow -

Copenhagen,	35 cks.
Constantinople,	38

Tar -

Amsterdam,	6 cks.
Antwerp,	25
Bergen,	4
Aalesund,	1
Copenhagen,	23
Hamburg,	3
Rotterdam,	10

Treacle -

Drontheim,	50 cks.
------------	---------

Varnish -

Antwerp,	2 cks. 4 cs.
Copenhagen,	2
Gothenburg,	2
Hamburg,	5
Stavanger,	1

GLASGOW.

Week ending March 4th.

Ammonium Carbonate -

Christiansand,	68
----------------	----

Ammonium Sulphate -

Demerara,	213 t. 19 c.
Ghent,	50 12½
Barbadoes,	100

Bleaching Powder -

Natal,	2 t. 4 c.
--------	-----------

Castor Oil -

Sydney,	1,125 lbs.
---------	------------

Coal Products -

U.S.A.,	6152
---------	------

Creosote Oil -

Danzig,	54 t. 10 c.
Pitch,	1,000 t.
Ibrail,	1,000 t.
Sicily,	500
Antwerp,	500
Tar,	260 t. 6 c.
Danzig,	640
Penang,	108.
Russia,	622.

Coal Products (otherwise undes.) -

Rotterdam,	6468
Amsterdam,	12

Extracts -

Canada,	696. 145.
Toronto,	6130

Farina -

U.S.A.,	5 t.
---------	------

Gelatine -

U.S.A.,	6522
---------	------

Lead Nitrate -

U.S.A.,	6100
Danzig,	3½ c.

Linseed Oil -

Trinidad,	3 t. 5¾ c
Antigua,	1 10
B. Ayres,	1 19¾
Singapore,	1 14

Logwood -

Oporto,	620
Rotterdam,	40

Manganese -

Rotterdam,	10 t. 6 c.
------------	------------

Manganese Ore -

Liege,	688
--------	-----

Manure -

Oporto,	25 t. 18 c.
Ghent,	20

Nitric Acid -

Bombay,	6160
---------	------

Ochre -

Natal,	628. 108.
--------	-----------

Paint -

Rangoon,	643.
B. Ayres,	107
Calcutta,	108
Hong Kong,	28
St. Lucia, H.I.,	20

Painters' Colours -

Rangoon,	qty.
Trinidad,	634
Algoa Bay,	69. 108.
Barbadoes,	"
Natal,	"
Yokohama,	35 10
Calcutta,	28 10
Cape Town,	110
Mossel Bay,	17 15
Pietermaritzburg,	40

Paraffin Wax -

Bilbao,	655.
Santander,	37
Danzig,	3 t.
Antwerp,	24
Cape Town,	38
Italy,	230
Russia,	100
Turkey,	1 3¾ c.
Rotterdam,	31

Potash Salts

Singapore,	2,000 lbs.
------------	------------

Potassium Bichromate -

Antwerp,	6570
Danzig,	21
Ghent,	158
Italy,	710
Rotterdam,	217

Potassium Prussiate -

Antwerp,	633
U.S.A.,	370
Genoa,	115

Salt Cake -

Terneuzen,	255 t.
------------	--------

Sheep Dip -

B. Ayres,	6141
-----------	------

Soap -

New York,	9 t. 13½ c.
Trinidad,	12 4¾
E. London,	2 10
Puerto Cortes,	2 16

Sodium Bichromate -

Antwerp,	19 c
Canada,	1 7½
Ghent,	5 19½
Italy,	68 11

Starch -

Rotterdam,	610
------------	-----

Sulphuric Acid -

Rangoon,	6391
Bombay,	2,325
Natal,	20

Superphosphates -

Genoa,	15 t. 15 c.
--------	-------------

Tallow -

Oporto,	17 c.
---------	-------

Treacle -

Gothenburg,	7 t. 3¾ c.
Oudshorn,	1 10
Bergen,	5 9½
Natal,	1 11¾
Christiania,	24 17

Varnish -

Yokohama,	681
-----------	-----

White Lead -

Natal,	629
--------	-----

TYNE.

Week ending February 27th.

Alkali -

Amsterdam,	29 t. 4 c.
------------	------------

Alum na Sulphate -

Lisbon,	10 t. 2 c
---------	-----------

Ammonia -

Pomaron,	6 c.
----------	------

Ammonium Chlorate -

Barcelona,	1 t. 1 c.
------------	-----------

Ammonium Sulphate -

La Rochelle,	50 t.
--------------	-------

Antimony -

Hamburg,	5 t.
Reval,	10 12
Christiania,	1 1
Rotterdam,	3 10
Barcelona,	1 12

Arsenic -

Gothenburg,	10 c.
Barcelona,	2 t. 5

Barium -

Venice,	7 t. 12 c.
Rouen,	13 6

Barium Carbonate -

Rouen,	10 t.
--------	-------

Barytes -

Hamburg,	9 t. 18 c.
----------	------------

Bleaching Powder -

Gothenburg,	20 t. 8 c.
Antwerp,	25 5
Constantinople,	4 10
Bergen,	30 4
Amsterdam,	27 3
Christiania,	30 5
Rotterdam,	23 16
Copenhagen,	40 10
Venice,	4
Odense,	10 1

Carbolic Acid -

Odense,	12 c.
---------	-------

Castor Oil -

Bergen,	3 c.
---------	------

Caustic Soda -

Hamburg,	41 t. 9 c.
Antwerp,	9 17
Reval,	10 12
Amsterdam,	2
Christiania,	4 18
Rotterdam,	8 14
Copenhagen,	5 11
Barcelona,	58
Venice,	15
Odense,	1 9

Colours -

Genoa,	1 t. 3 c.
--------	-----------

Hydrochloric Acid -

Pomaron,	15 c.
----------	-------

Linseed Oil -

Ergasteria,	4 c.
-------------	------

Litharge -

Amsterdam,	17 c.
Christiania,	1 t. 8
Lisbon,	1 8

Magnesia -

Hamburg,	13 c.
Antwerp,	1
Constantinople,	1 t. 7
Barcelona,	8 6

Nitric Acid -

Pomaron,	4 c.
----------	------

Paint -

Bergen,	6 c.
Rotterdam,	1 t.

Paraffin Wax -

Barcelona,	3 t.
------------	------

Pitch -

Rouen,	20 t.
--------	-------

Plumbago -

Ergasteria,	9 c.
-------------	------

Soap -

Pomaron,	3 c.
----------	------

Soda -

Bergen,	4 t. 17 c.
Constantinople,	40 12
Christiania,	7 10
Rotterdam,	20
Venice,	23 5
Leghorn,	18 16

Soda Ash -

Gothenburg,	2 t. 15 c.
Christiania,	10 10
Venice,	5 13

Sodium Hyposulphite -

Rotterdam,	1 t. 7 c.
Barcelona,	1 3

Sulphur -

Gothenburg,	20 t.
Antwerp,	12 2 c.

Superphosphates -

La Rochelle,	1,200 t.
--------------	----------

Tallow -

Genoa,	10 t. 11 c.
--------	-------------

Tar -

PRICES CURRENT.

WEDNESDAY, MARCH 10TH, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	&	8/9
Glacial	per cwt.	40/-		
Arsenic S.G., 2000°	per lb.	1	4	0
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	per lb.	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	per lb.	0	0	1½
Oxalic	nett	0	0	3½
Phosphoric, 1750°	per lb.	0	0	11½
Picric	per lb.	0	0	11
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	per ton	5	10	0
(Pyrites, 168°)	per ton	3	0	0
(free from arsenic, 145°)	per ton	1	7	6
Sulphurous (solution) S.G. 1025	per lb.	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	per lb.	0	1	1
Arsenic, white powdered	nett per ton	24	10	0
Alum (loose lump)	per ton	4	10	0
Alumina Sulphate (pure)	per ton	4	2	6
Aluminoferrous	per ton	2	5	0
Aluminium (Ingot metal 98/99½ %)	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	3
" 880=28° B.	per lb.	0	0	2½
" =24° B.	per lb.	0	0	1½
Carbonate	nett	0	0	3
Muriate	per ton	18	15	0
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
Nitrate	per ton	33	0	0
Phosphate	per lb.	0	0	4½
Sulphate (grey) London	per ton	8	5	0
(grey) Hull	per ton	8	5	0
Aniline Oil (pure)	per lb.	0	0	9
Aniline Salt	per lb.	0	0	8½
Antimony	per ton	31	0	0
(tartar emetic)	per lb.	0	0	9
(golden sulphide)	per lb.	0	0	10
Barium Chloride	per ton	6	17	6
Carbonate (native)	per ton	3	10	0
Sulphate (native levigated)	per ton	42/6	to	65/-
Bleaching Powder, 35 %	nett	6	10	0
Liquor, 7 %	per ton	3	10	0
Bisulphide of Carbon	per lb.	13	0	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	per ton	15/-	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	7
Magenta	per lb.	0	3	0
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	8
Benzol, 90's	per gallon	0	2	10
50/90	per gallon	0	2	6
Carbolic Acid (crude 60°)	per gallon	0	2	5
(crystallised 40°)	per lb.	0	0	7½
(liquid 95/97 %)	per gallon	0	0	10
Creosote (ordinary)	per ton	0	0	2
(filtered for Lucigen light)	per ton	0	0	2½
Crude Naphtha 30 % @ 120° C.	per ton	0	1	1
Grease Oils, 22° Tw.	per ton	2	15	0
Pitch, f.o.b. Liverpool or Garston	per ton	1	3	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	8
Copper	per ton	50	12	6
Sulphate	per ton	18	15	0
Oxide (copper scales)	per ton	44	10	0
Glycerine (crude)	per ton	37	10	0
(distilled S.G. 1250°)	per ton	70	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	10	0
Sulphide (antimony slag)	per ton	2	0	0
Lead (sheet) for cash	per lb.	12	15	0
Litharge Flake (ex ship)	per lb.	14	15	0
Acetate (white)	per lb.	23	0	0
(brown)	per lb.	1	10	0
Carbonate (white lead) pure	per lb.	16	1	0
Nitrate	per lb.	1	0	0
Lime, Acetate (brown) (ex ship)	per ton	4	17	
(grey) (ex ship)	per ton	8	7	
Magnesium (ribbon and wire)	per oz.	0	2	
Chloride (ex ship)	per ton	2	7	
Carbonate	per cwt.	1	17	
Calcined Magnesia	per ton	9	0	
Sulphate (Epsom Salts)	per ton	2	15	
Manganese, Sulphate	per ton	16	10	
Borate	per cwt.	2	10	
Ore, 70 %	per ton	3	10	
Methylated Spirit, 61° O.P.	per gallon	0	1	
Naphtha (Wood), Solvent	per gallon	0	2	
Miscible, 60° O.P.	per gallon	0	2	
Oils:—				
Cotton-seed	per ton	15	15	
Linseed	per ton	16	15	
Petroleum, American	per gallon	0	0	
Stearine	per ton	19	10	
Phosphorus (yellow)	per lb.	0	2	
(red)	per lb.	0	2	
Potassium (metal)	per oz.	0	3	
Bichromate	nett per lb.	0	0	
Carbonate, 90% (ex ship)	per ton	17	10	
Chlorate	per lb.	0	0	
Cyanide, 98 %	per lb.	0	0	
Hydrate (Caustic Potash) 90 %	per ton	24	5	
(Caustic Potash) 75/80 %	per ton	20	10	
(Caustic Potash) 70/75 %	per ton	20	0	
Nitrate (refined)	per cwt.	1	1	
Permanganate	per cwt.	3	17	
Prussiate Yellow	per lb.	0	0	
Sulphate, 90 % (ex ship)	per ton	9	15	
Muriate, 80 % (do.)	per ton	8	10	
Silver (metal)	per oz.	0	2	
Sodium (metal)	per lb.	0	2	
Carb. (refined Soda-ash) 48 %	nett per ton	4	15	
(Caustic Soda-ash) 48 %	per ton	4	5	
(Carb. Soda-ash) 48 %	per ton	4	0	
(Alkali) 58 %	per ton	3	10	
(Soda Crystals)	per ton	2	0	
Acetate (ex-ship)	per ton	13	15	
Arseniate, 45 %	per ton	15	0	
Chlorate	per lb.	0	0	
Borate (Borax)	nett, per ton	18	0	
Bichromate	per lb.	0	0	
Hydrate (77 % Caustic Soda) (f.o.b.)	nett per ton	9	5	
(74 % Caustic Soda)	per ton	8	2	
(70 % Caustic Soda)	per ton	7	2	
(60 % Caustic Soda)	per ton	6	2	
(pure liquor 90° Tw.)	per ton	3	15	
77/78 % powdered (99 % hydrate)	per ton	13	10	
Bicarbonate	per ton	6	10	
Hyposulphite	per ton	5	5	
Manganate, 25 %	per ton	15	0	
Nitrate (95 % ex-ship Liverpool)	per cwt.	0	8	
Nitrite, 98 %	per ton	30	0	
Phosphate	per ton	12	0	
Silicate (glass)	per ton	4	10	
(liquid, 100° Tw.)	per ton	3	10	
Stannate, 40 %	per cwt.	3	2	
Sulphate (Salt-cake)	per ton	0	19	
(Glauber's Salts)	per ton	1	7	
Sulphide	per ton	6	15	
Sulphite	per ton	5	0	
Strontium Hydrate, 100 %	per ton	3	0	
Sulphocyanide Ammonium, 95 %	per lb.	0	0	
Barium, 95 %	per lb.	0	0	
Potassium	per lb.	0	0	
Sulphur (Flowers)	per ton	7	10	
(Roll Brimstone)	per ton	6	10	
Brimstone: Best Quality	per ton	4	15	
Superphosphate of Lime (26 %)	per ton	2	15	
Tallow	per lb.	18	0	
Tin Crystals	per lb.	0	0	
English Ingots	per ton	64	10	
Zinc Spelter	per ton	17	7	
Chloride (solution, 160° Tw.)	per ton	5	2	

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

13.

SATURDAY, MARCH 20, 1897.

Vol. XX.

Contents.

	PAGE		PAGE
ard	205	Report on Manure Material	208
Making Plant	206	The Metal Markets	209
est Complete Speci-	207	Liverpool Oil and Colour Market	209
oleum can be Pro-	207	West of Scotland Chemicals	209
ports for February.	208	Tyne Chemical Report	209
ia Products	208	Hull Paint, Oil, and Colour Report	209
Chemical Market	208	New Companies	210
		Imports	210
		Exports	212
		Prices Current	216

VERTISEMENTS.

NG FOREMAN WANTED for Vitriol
Preference given to one who can do Lead-burning. Experience
acter essential.—Address, "Foreman," *Chemical Trade Journal*
ter.

URIC ACID.—WANTED a Manager to
d small Works (under Principal). Give references and particulars
e and salary required.—Address, "W. W. K.," *Chemical Trade*
Manchester.

R INDEX



SEE INSIDE.

Notices.

Communications for the *Chemical Trade Journal* should be
ed Cheques and Post Office Orders made payable to—

BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

as of Subscription, commencing at any date, o the
Trade Journal,—payable in advance,—including postage
the world, are as follows:—

(52 numbers)	12s. 6d.
Yearly (26 numbers)	6s. 6d.
erly (13 numbers)	3s. 6d.

ll oblige by making their remittances for subscriptions by
t Office Order, crossed and payable to "Davis Bros."

e invited to forward items of intelligence, or cuttings
wspapers, of interest to the trades concerned.

tions for the Editor, if intended for insertion in the
s issue, should reach the office not later than **Tuesday**

ports, and correspondence on all matters of interest to
and allied industries, home and foreign, are solicited.
ts should condense their matter as much as possible,
side only of the paper, and in all cases give their names
not necessarily for publication. Sketches should be
ate sheets.

LOOKING WESTWARD.

THE outlook for the chemical trade in England is certainly
not at the moment inviting, especially in heavy
chemicals, but it behoves us at home to be on the alert and
watch with jealous eyes whatever may be doing abroad. We
have heard at various times of consignments of heavy
chemicals landed at the port of London from the Continent,
and the thought of competition from this quarter has filled
many minds with fear, but such competition has never been
seriously considered by anyone intimately acquainted with
the subject. We must, however, now turn our attention
westward, and see what is going on in the United States of
America.

The caustic soda manufacture has up till quite lately been
a virtual monopoly of Widnes, St. Helens, and Newcastle,
but the Michigan Alkali Company, of Wyandotte, have just
broken the ground for a works of considerable magnitude,
the effect of which will sooner or later be seriously felt at
home, as it is only the "thin end of the wedge" towards an
immense development in the States.

The Michigan Alkali Co., is an offshoot of the old Pittsburg
Glass Co., where is produced the soda used in the manu-
facture of glass by the parent firm. They have two very large
works, of which the No. 1 works is on the banks of the
Detroit lakes, and is at the present time turning out 100 tons
of soda ash per day; it is here that the caustic soda plant is
being put down. The No. 2 works is two miles nearer
Detroit, also on the banks of the lake, and in the midst of the
saline and limestone district of Michigan. This works is now
making two hundred tons of soda ash per day, and the plant
is being enlarged to turn out three hundred tons per diem.

The Michigan Alkali Co. has Captain J. B. Ford for presi-
dent, who is assisted by his grandson, J. B. Ford, junr., as
vice-president and general manager, and a former Glasgow
man as works manager. Contracts have been let for all the
buildings, machinery and plant, which is of the most modern
description, and, it may be added, there is nothing so com-
plete in this country. The Company have a large iron-
foundry close to the factory, where they make all their own
castings, and do all their own boiler work, which will serve
them in good stead in opening up this new industry. The
President expects the new plant to be ready by the 1st of
May in this year, but we do not think this is likely to be
accomplished. The building is to be a steel and slate roof
with a chimney 50 yards high. An electric twenty ton crane
will place and remove the caustic pots, and the most approved
system of multiple evaporation is to be adopted. The caustic
pots will be fired by gas from the company's own special gas
producers, of which they have had a long experience, and
which will no doubt be more successful than the attempts
that have been made in this country to "finish" caustic by
gaseous fuel.

The *modus operandi* is to causticise a solution of ammonia soda ash by means of lime obtained from limestone in the immediate vicinity (at Wyandotte), and to concentrate the liquors as far as possible by multiple evaporation. The liquor thus obtained, containing about equal parts of water and solid caustic, is then finished and fused in the usual way. This process, with the exception of the multiple evaporation, is to-day carried out at a works in Widnes, where also the carbonate of lime is recalcined in a revolver, and made to do duty again as a causticising material, some of the mud being withdrawn at intervals to allow for the gathering of impurities, and its place being made up by fresh lime.

Mr. President Ford has in view also the manufacture of cement from this waste lime mud, and there is no doubt that before very long we shall see this company as large cement makers.

This is not the first serious caustic enterprise in the States. At various times during the past half century small efforts have been made, almost ludicrous to recount now, but which still are in the remembrances of those living. At Wilmington, near Boston, some thirty years ago, there was a small works making cylinder acids, the owners of which essayed to make



CAPT. J. B. FORD.



J. B. FORD, JUN.

caustic soda. The cylinder salt cake was made into black ash with anthracite slack and oyster shells, and the crude black ash liquor thus obtained was causticised with imported lime that came to the works in barrels. After a few months in this way, the manufacture was given up as unprofitable.

These futile attempts were followed up by operations at Syracuse, and recently we have also the Mathieson production to take into account. More caustic soda is to-day being made in America than the home manufacturer cares to realise, but we are inclined to think that the enterprise which we have briefly sketched above will surpass all its precursors in its effect upon the industry. The Yankees are generally credited with knowing as much about electricity as we do, and it is somewhat significant that Mr. Ford has decided in favour of chemical methods.

SOCIETY OF CHEMICAL INDUSTRY, MANCHESTER SECTION.—The Annual General Meeting will take place on Friday, April 2nd, 1897, at 7 p.m., in the Rooms of the Chemical Club, Victoria Hotel. The first business will be the election of five members of Committee, to fill the places of the five who retire and are not eligible for re-election. Nominations for the five members must be sent to the hon. sec., J. C. Bell, fourteen days before the annual general meeting. After the election the following papers will be read:—"On Silk Adulteration," by Sir Thomas Wardle, F.G.S., etc.; "On the Hot Vulcanisation of India-rubber," by Mr. Carl Otto Weber.

A COMPACT ICE MAKING PLANT.

THERE are many situations in which it would be a profitable investment to erect ice making and cooling plant provided the same could be placed in a comparatively small space of ground. The Pulsometer Engineering Company Limited, of Nine Elms Works, London, S.W., have, we think, in the instance to which we are about to refer satisfactorily solved the problem in question. In a space of 114 ft. x 32 ft. they have fixed a plant for the manufacture of ten tons of clear ice per day, at the same time providing cold at

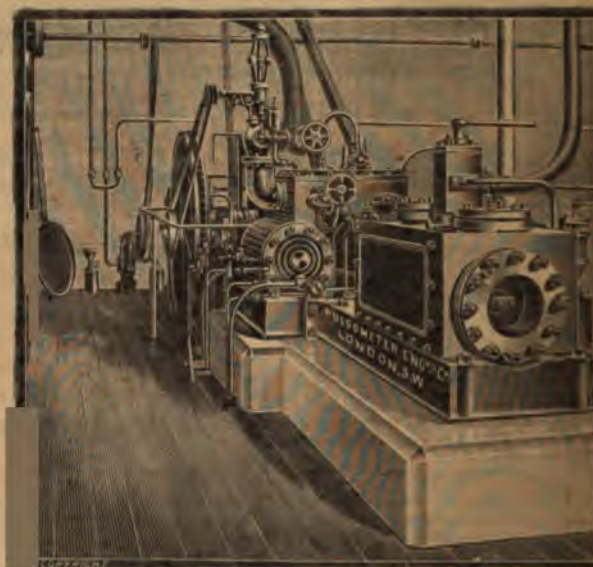


FIG. 1.

of 20,000 cubic feet capacity, and a chill room for the abattoir, is in the same building. The cold stores are on the upper floor, everything else is on the ground floor, so that the cost of building, comparatively speaking, very small for a plant of this size.

The boiler is of the Lancashire type constructed for a working pressure of 110 lbs. per square inch, and is fitted with special forced draught



FIG. 2.

apparatus for burning cheap fuel. The engine and compressor are the contractor's patent type, i.e., with high and low pressure cylinders side by side, working on the same crosshead and driving the compressor in between. This arrangement is entirely self-contained, requires very little fixing, and occupies a very small space, as may be gathered from our illustration, Fig. 1.

compressor is of the Pulsometer Engineering Company's latest, being of the double acting type with renewable seats and working without springs. A bye-pass, with wrought iron and pipes, is fitted to this pump for enabling the contents of the tank to be pumped into the refrigerator if required, and *vice versa*, a very handy arrangement in case of repairs being necessary at any time. The engine is provided with an ejector condenser, the water for which is brought from the overflow of the condenser tank. A circulating pump is a special high lift centrifugal, running at 1,000 revs. per min., which draws the water from the adjoining canal through a pipe of six inch cast iron piping. The gas condenser is placed in the room.

Ice tanks are three in number, made of specially selected timber, and contain the freezing cells. These cells in ordinary work produce ice 8 ft. x 6 ft. x 8 in., but when required the thickness can be increased to 16 inches. The quality of the ice is very nearly perfect, superior to the very best class of Norway ice. (See Fig. 2.) When formed is lifted by an ordinary hand crane, and cut up as required. The cold storage rooms are worked on the direct expansion system, as is also the chill room, the air being circulated by fans. Pipes of the ammonia pipe work, receivers, valves, &c., are made of wrought iron or steel, no cast iron of any description being used on account of the danger attached thereto.

The plant has now been working with most satisfactory results for some time, and is certainly an example of compactness and efficiency.

The Patent List.

This list is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Refining and Purifying Ammonium Nitrate. R. N. Lennox. 5,483. March 2.
 Method to Prevent Inhaling Smoke. C. A. A. Miller. 5,512. March 2.
 Preparing Magnesium Hydrate. T. Jennings. 5,564. March 2.
 Petroleum Fuel. J. Kohndorfer. 5,609. March 3.
 Preparing Combustible Substances. A. Basch and H. Graepel. 5,698. March 3.
 Portable Fire Engines. J. E. Bott and G. H. Morrison. 5,730. March 4.
 Refining Petroleum. H. Hansen. 5,786. March 4.
 Drinking Water from Germs. P. Altmann. 5,793. March 4.
 Method, etc., Treatment. W. M. Ducat. 5,803. March 4.
 Primary Battery Elements. D. G. Fitzgerald. 5,805. March 4.
 Soap Powder. A. F. Dunn and A. Waittman. 5,820. March 4.
 Glycerine, etc. E. G. Scott. 5,889. March 5.
 Grating Apparatus. L. Gjersøe. 5,900. March 5.
 Preparation of Zinc White. W. Negus. 5,909. March 5.
 Removing Coal Dust from Water. J. Moore. 5,927. March 6.

TRACTS OF LATEST COMPLETE SPECIFICATIONS.

These abstracts are specially prepared for the Chemical Trade Journal, and the rights of publication are reserved. This is the earliest of abstracts of Chemical and allied patents accessible to the public.

Improvements in the Electrolytic Production of Zinc and Alkalies. O. Dieffenbach, 2, Hugelstrasse, Darmstadt. Eng. Pat. 25,804. March 16, 1896.

An alkaline solution of zinc and sulphate of soda is electrolysed in a cell, which is divided into three compartments by means of two diaphragms. Metallic zinc is formed in the cathode compartment, with the simultaneous production of free sulphuric acid in the anode compartment. The alkali in the middle compartment. The lye is enriched up to its limits (which are stated) by the regular addition of fresh lye, and the contents of the middle compartment are sufficiently rich to be removed, and concentrated to crystallizing point by evaporation.

A Joint or Connection for Use with Pipes in Sulphuric Acid. P. Duggan, 25, Pier-road, Rosherville Kent. Eng. Pat. 5,012. March 5, 1896.

An improvement relates to the pipe connecting the pyrites or gas burners with the acid chambers or Glover tower. The nozzle of the latter is formed like a tuiere, so that air or water can be introduced in the jacket. A moveable section of piping of suitable material connects the burners and this nozzle, so that when corroded it can be replaced easily and without disturbing the wall connection with the tower or chambers. There are three figures,

Improved Process of Producing Basic Lead Carbonate and Obtaining Bye-Products. The Chemical Electrolytic Syndicate, Ltd., O. J. Steinhart, and J. L. F. Vogel, all of 6, St. Clement's-lane, Lombard-street, London. Eng. Pat. 6,655. March 26, 1896.

Crude pig lead is dissolved in nitric acid. Any silver, etc., is removed by adding finely-divided metallic lead to the nitrate of lead just formed, the argentiferous lead being subsequently separated and treated. A solution of carbonate of soda that would be nearly saturated when cold is heated to boiling, and a boiling solution of lead nitrate is added, stirring well. The carbonate should be in excess. The basic lead carbonate precipitates free from lead nitrate. The solution of sodium nitrate and excess carbonate is evaporated, and the carbonate removed, or the salts may be mixed with ferric oxide in an inclined revolving retort (C. 77, 464, p. 238), producing caustic soda and liberating nitric acid, which is used over again.

Utilization of Bye and Waste Products from Iron and Steel Industries for the Manufacture of Improved Precipitants for the Purification of Sewage and other Waste Liquids. W. E. Adeney, 1, Eaton-place, Monkstown, Dublin, and W. K. Parry, 6, Charlemont-terrace, Kingstown, Dublin. Eng. Pat. 5,955. March 17, 1896.

The flue dusts resulting from the manufacture of iron, ferro-manganese, and steel are treated at a gentle heat with sulphuric acid or hydrochloric acid, and the resulting mass, containing sulphates or chlorides, is used as a precipitant. If desirable, the mass can be leached, and only the solution so obtained used on the sewage, etc. The following advantages are claimed for such flue dusts as being specially suitable for treatment to produce a precipitant:—They are very fine, are easily attacked by the acids, contain little or no lime, which would waste vitriol, they give off no objectionable gases under treatment, and the product contains sulphates or chlorides of manganese, magnesium, and aluminium, as well as of iron, so that an efficient and economical precipitant is produced.

Improvements in or Relating to Tanning. A. Levinstein, 29, Avenue Wagram, Paris. Eng. Pat. 10,263. May 13, 1896.

Rapid tanning in fulling vats with strong extracts is facilitated by maintaining a favourable temperature, viz., from 20°C. to 40°C. The regulation is accomplished by heating with steam, cooling with injected air, and also regulating the speed at which the vats revolve. By the individual or combined assistance of these agencies, the internal temperature is kept within the desired limits.

THE IRLAM SOAP WORKS.—The output of soap from the Irlam works for the quarter ending December averaged 102 tons per week, with a total value of £26,548. for the quarter. Large as this amount seems, it represents only a small proportion of the soap trade of the Wholesale Society. 77 per cent. of which is done with other manufacturers.

WHITELEAD MANUFACTURE AT ODESSA.—Whitelead is imported in very big quantities into South Russia, and has to pay a heavy duty. It would, therefore, be a very good step for an English manufacturer to establish works on the spot at Odessa. He would have the monopoly of the whole country, as there are no rival makers. If any of our readers feel interested they can obtain further particulars by writing to our correspondent, Mr. Rud C. Gittermann, Odessa, South Russia.

AN INVENTOR KILLED.—Last week a plumber of Egremont, Cheshire, was experimenting with an acetylene gas-engine, which he had constructed, when the machine exploded, and he received such shocking injuries about the head that he died in a few minutes. He had used the engine the day before, and was under the impression that all the gas had been exhausted. The deceased was explaining the construction of the machine to his wife when the explosion occurred.

SALE OF THE CHESHIRE ALKALI WORKS.—An extraordinary meeting of shareholders of the Cheshire Alkali Company, Middlewich, was held at Crewe last week. Mr. Alan Egerton, M.P., who presided, explained the negotiations which had taken place between Sir John Brunner (on behalf of Brunner, Mond, and Company) and the Cheshire Alkali Company for the purchase of their undertaking. Under the agreement with Brunner, Mond, and Company, the Alkali shareholders would receive about thirty-five shillings for every fifty shillings share fully paid up, and thirty shillings for shares on which there was a further liability of five shillings. Brunner, Mond, and Company were prepared either to pay the whole in cash, or part in cash and part in preference and ordinary shares in their company. Mr. Egerton added that by that agreement something like £45,000 would be available for distribution amongst the ordinary shareholders of the Alkali Company. There were also certain other charges, which would be met. The shareholders unanimously adopted the proposal to sell the works to Brunner, Mond, and Company. It is understood the total amount to be paid approximates to about £100,000.

IMPORTS AND EXPORTS FOR FEBRUARY.

THE Board of Trade returns for the last month are fairly good, though the exports are scarcely satisfactory. In the imports the values of chemicals and oils are less, the same being the case with both the quantities and values of bones, guano, nitrate of soda, esparto grass, and tallow. In the exports alkali salt and chemical manures are all less in quantity.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1896.	1897.
Margarine	Cwt. 80,537	83,546
Copper Ore and Regulus	Tons. 13,357	11,419
Pyrites	" 48,219	54,671
Tin	Cwt. 59,181	27,938
Alkali	" 5,869	13,775
Brimstone	" 82,740	49,392
Dyes, Coal Tar	" 63,517	63,351
Saltpetre	Cwt. 29,310	29,706
Petroleum	Gall. 18,094,640	17,663,525
Turpentine	Cwt. 10,693	75,539
Guano	Tons. 2,204	726
Nitrate of Soda	" 19,447	9,561
Paraffin	" 35,957	68,874
Rosin	Cwt. 122,604	291,729
Tallow and Stearine	" 174,150	78,129
Oil Seed Cake	Tons. 22,180	23,709
Wood Pulp	" 25,326	24,629

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1896.	1897.
Alkali	Cwt. 340,931	329,668
Cement	Tons. 27,612	29,150
Coal and Coke	" 2,308,521	2,340,257
Copper, all kinds	Cwt. 120,117	61,800
Iron and Steel	Tons. 237,346	261,930
Chemical Manures	" 36,516	34,207
Oils, seed	" 4,442	4,549
Salt	" 41,124	34,972

HOW SAFE PETROLEUM CAN BE PROCURED.

JUST five weeks ago we were able to give a most interesting account of the fight between the Iowa State Board of Health and the Standard Oil Co., as related by Mr. L. F. Andrews, the Assistant Secretary. It is encouraging and instructive to read the following, which he has since communicated. Referring to his remarks as last published (*C. T. J.* 508, p. 128) he says:—

"I desire to supplement that statement by saying that since the closure of the contest over the establishment of an inspection service in this State there has been no trouble with the Standard Oil Co. whatever. They have worked most loyally under the law, and I feel warranted in saying that if your Commission should fix a flash point of even one hundred and five degrees that Company will furnish the oil, but you will have to require all other refiners to do the same or there will be war. That being done it leaves the whole traffic subject to competition, and the public will get the benefit thereof. The Standard Oil Co. are able to, and will furnish whatever the market demands. Of course the quality fixes the price.

"I say this in exact justice to the company, who has shown itself strictly honourable in all matters in this State, since the question of standard was fixed. We have the most trouble with independent companies who seek to evade the law."

This shows very clearly that if handled the right way the Standard Oil Co. know better than to spoil their trade by continuing to sell bad stuff. Nor are they likely to give competitors a chance by selling the safe oil at too high a price. The present Parliamentary Committee have the case plainly before them now. They have no need to waste time about the future cost as made out by the Standard Oil Co., through their Anglo-American Oil Co., for they have the direct testimony of those who have fought and won, showing that if the flash point be raised to 100°F or 105°F, the Standard Oil Co. can and will find the oil, while the competition thus created will keep the price healthy. After this it is harder than ever to see why some of our English "experts" are so anxious to save the Standard Oil from this competition. We know the trade in 73° oil is as lucrative to the dealers as it is deadly to the users, but whatever difference can

the change make to them? We cannot say, neither is it for us to say; but one thing is evident, namely, that scientific truths and safety of their poorer fellow subjects come with them a long after the interests of a few naphtha vending goldbugs.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of Money Order, a letter advising us of same should always be otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this case.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products in general show no change. Benzols are quoted variably from 2s. 7d. to 2s. 10d. for 90's, and 2s. 4d. to 2s. 6d. for 50/90's. Carbolic acids and naphthas remain as quoted last week market being steady. Makers are firm in their requirements. Picric acid rather firmer at 22s. 6d. to 23s. 6d., f.o.b. East Coast.

Sulphate of ammonia is somewhat quieter, but prices are maintained. At Beckton £7. 17s. 6d. is asked for April delivery. In prompt, closing values are Beckton £8 London £8. 5s., Liverpool £8. 3s. 9d., Hull and Leith £8. Nitrate of soda quiet but steady.

MISCELLANEOUS CHEMICAL MARKET.

The market for alkalis is fairly steady, and in prices there are few fluctuations. For caustic soda, current quotations are the same as for some time past, viz.:—F.o.b. Liverpool, 77%, £9. 5s.; 78%, £8. 2s. 6d.; 79%, £7. 2s. 6d.; 80%, £6. 2s. 6d. net ton, 10-ton lots and upwards. Ammonia alkali, 58%, firm, for home trade price has just been advanced to £3. 17s. 6d., bags, though unchanged for export. Soda crystals and bicarbonate are unchanged. Leblanc ash quiet, and nominally 1d. to 1½d. per cwt. f.o.b. Liverpool, according to quality. Sulphate of copper rather easier, at £18. 10s. to £18. 15s. f.o.b. Sulphur firm at £4. 12s. f.o.r. For vitriol and muriatic acid there is a good demand at prices. In chlorates of potash and soda there is little doing in way of fresh business, and current quotations are nominally 3½d. 4¼d. per lb. respectively. Nitrate of soda steady, at 7s. 10½d. for prompt and forward delivery. There is a continued good demand for potash, caustic and carbonate, at full rates, but a slight tendency for forward delivery. For white powdered alum demand is rather quiet at the moment, but with short supply firm at £24. to £24. 10s. according to brand. In acetic acid acetates the position of the market generally is firm, with, if anything, a tendency in the direction of higher prices. Lead salts are again easier at 8d. and 7½d. respectively. Carbolic acids steady, with a continued firm market for 35 crystals at 7½d. per lb., in quantity. For green copperas demand active, and price, generally, firmer. Alumina sulphate and alum offering at low rates. Potash permanganate scarce, and price 6 72s. 6d. to 75s. per cwt. Yellow prussiate 5d. to 5½d. Cyanide out improvement at 11d. For miscellaneous chemicals reports generally indicate a quiet state of trade.

REPORT ON MANURE MATERIAL.

The market has been very quiet throughout the week, and have only just been maintained. Quotations for mineral phosphates are unchanged. Raisers seem confident about low rates of freight they are now willing to offer into 1898 at present level of 10s. There is nothing doing in River Plate bones in the absence of cargoes offering. Owing to closing of French ports against ships of bone material from Bombay, considerable quantities have arrived at Liverpool which were not expected. Hence as low as £3. 12s. has had to be accepted for crushed Kurrahee bones, and same

y bone meal, ordinary quality. For fine Bombay bone meal it is asked, but £3. 15s. would probably do for quantity. Soda is steady, but the anticipated spring demand has scarcely needed, and consequently there is not much firmness about the

THE METAL MARKETS.

ON, WEDNESDAY.—Pig iron: Scotch warrants closed at Middlesbrough 39s. 10d. cash, and hematite 47s. 10d.asier: Chili bars, G. O. B.'s and G. M. B.'s, closed at 9d. to £50. 3s. 9d. cash, and £50. 7s. 6d. to £50. 12s. 6d. this. Tin steady: Straits closed at £59. 2s. 6d. to 6d. cash, and £59. 15s. to £60. 5s. three months; £60. 12s. 6d.; English ingots, £63. 5s. to £63. 10s. nish, £11. 11s. 3d.; English, £11. 5s. Silesian spelter, 17. 5s. Nickel, 1s. 2½d. Antimony, £31. Quicksilver: 6, £7. 5s.; second hands, £7. 4s. Copper shares quiet: 0 2½; Copiapo, 1½ to 2½; Libiola, 2½ to 2½; Mason 2½ to 2½; Rio Tinto, 20¼ to 26¾; Tharsis, 6½ to 6¾.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

Palm oil is quiet, and moving slowly, with Lagos at £20. 5s. and £20. 10s. transit. Olive is firm, with a fair inquiry. Lard is dearer. Linseed is steady at 15s. 6d. to 17s. per cwt., but is quiet. Cotton seed remains at 15s. 6d. to 16s. 3d. Liverpool refined. Castor oil is rather quieter, with good cutta at 2½d. to 3d., and first pressure French 2½d. per lb., though firm, is slow to move. Resin is only in moderate full prices for all grades. Spirits of turpentine steady at 1 cwt. on spot. Petroleum easier. American 5¼d. to 7d., refined 5¼d. to 5¾d. per gallon.

NORTH OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

A satisfactory feature in this section of the chemical market, the continued progress of recovery in sulphate of ammonia. It is any very large gain, but a little of amendment in this is warmly welcomed after so protracted a period of chronic depression.

To-day's prompt price is £8. 7s. 6d., f.o.b. Leith and the feeling as strong at that, with the promise of further improvement. Nitrate also is firmer. Sulphur still scarce and holds the price. The rest of the market goes the other way, if anything, and of copper and chlorate of potash are both quoted lower. The price of mineral oils and paraffins there is no unexpected movement, the only really healthy line. Paraffin (thick) has been marked down to 6½d. per gal., to hold at the price, over the quieter season, although it is not very firm, and possibly come in for a further drop.

Current prices are:—Soda crystals, £2. 2s. 6d., nett, Tyne; 1/62, £4. 2s. 6d. to £4. 7s. 6d. nett, Tyne; white alkali, 17s. 6d. to £4. 7s. 6d. nett, Tyne; alum in lump, £5. to £5. 5s. nett; caustic soda, white, 74, £8. 2s. 6d., 70/72, £7. 2s. 6d., 7s. 6d., and cream 60/62, £6., all nett, Liverpool; bleach, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, boracic acid, £28. nett, Glasgow; bicarbonate of soda, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; potash, 4½d. nett, for Scotch and English deliveries (for f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for English deliveries (for export, 3½d. nett, f.o.b. Glasgow); potash, 3¾d. less 5%, any port; nitrate of soda, sulphate of ammonia, £8. 7s. 6d. prompt, f.o.b. Leith; first and second white, £35. and £33. nett. Sulphate of copper, £18. 15s., less 5%, Liverpool; paraffin, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin semi-refined, 1¼d. to 2d. per lb.; paraffin spirit ½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and No. 2, at Glasgow and other big centres, for Scotch buyers ½d. to ¾d. lower; ditto (lubricating) 865° £5. to 5° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. 10s. of sugar at Greenock were nil.

TYNE CHEMICAL REPORT.

TUESDAY.

are quiet in tone, though there is perhaps a shade more of firmness in demand at £5. Soda crystals, £2 2s. 6d. weight, locally. Caustic 76/77% £9. per ton. 70% £7. Other products unchanged.

powder, soft, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s.

per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 2s. 6d. per ton, nett; do., 50%, £4. 5s. per ton, nett; do., 52%, £4. 7s. 6d. per ton, nett; alkali, 36%, £3. 7s. 6d. per ton, nett; white alkali, 48%, £4. 17s. 6d. per ton, nett; do., 50%, £5. 2s. 6d. per ton, nett; do., 52%, £5. 7s. 6d. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 2s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 2s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady, at 9s. per ton f.o.b. Tees.

COALS.—In the coal trade there is dullness generally and prices all round may be said to be a shade weaker. Coke, however, continues firm at 15s. and 16s. per ton. Best Northumbrian steam, 7s. 9d. to 8s. per ton; second quality, 7s. to 7s. 3d. per ton; small steam, 3s. 3d. to 3s. 6d. per ton. Gas coals, dull 7s. 6d. to 8s. 3d. per ton. Bunker coals, 7s. 3d. to 8s. per ton. Household coals, 10s. to 11s. per ton. Coke, steady at 15s. to 16s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The market here remains quiet with but little alteration in prices, but trade here, generally, is steady. The imports to date have been compared with same time a year ago: Linseed, 71,413 qrs., against 93,590 qrs. rapeseed, 34,517 qrs., against 14,522 qrs.; cottonseed, 49,713 tons, against 42,069 tons. Oilcake, 2,248 tons against 3,632 tons. Olive oil 810 tons against 1286 tons. Linseed oil is flat: spot, 13s. 7½d. month, 13s. 9d., also March-April May-August sellers at 14s. 4½d. Boiled and refined, £1 to £1. 10s. per ton extra. Cotton oil: refined is dull, and quoted: spot, 13s. naked; March-April, 13s. 1½d.; May-August, 13s. 9d. sellers. Crude has spot sellers at 12s. Filtered refined is quoted £1. to £1. 5s. per ton extra. Casks £1. and ordinary barrels, £1. 10s. per ton extra. Olive oil remains unchanged, and £31. 10s. being the quotation for Candia. Castor oil firm and unchanged. Turpentine unchanged. There is also a good demand for lubricating mineral oil which hold out no prospect of cheaper rates. Cod oil, £16. to £18. per ton. Oleines, pale distilled, £17. 15s. Saponified, £18. 15s. White distilled, £20. per ton. Yorkshire grease £8. to £9. The provision market here is improving both in demand and prices. Pail lard 24s. per cwt. Danish and Swedish butters 102s. to 106s. Dutch; 95s. to 99s. Colonial 96s. to 98s.; States Creamery, 86s. to 90s.; per cwt.

CAKES.—This market remains dull and quiet. Linseed cakes dull; 95% pure, £6. 7s. 6d. to £6. 10s. per ton Oilcakes quiet: £5. 7s. 6d. to £5 10s. American £5. 17s. 6d. Cotton cakes quiet but firm: best makes £3. 17s. 6d. to £4.; seconds, £3. 15s. to £3. 17s. 6d. Rape cakes very scarce. Black sea for manure purposes, £3. 10s. per ton.

PAINTS.—Manufacturers continue and expect to continue busy. Prices are unchanged.

New Companies.

Midland Acetylene (Parent) Syndicate Ltd.—CAPITAL £50,000, in £1. shares. This company has been formed to establish companies and associations for the manufacture of calcium carbide, acetylene gas, etc. The subscribers to the memorandum of association are: F. H. Haviland, St. Peter's Chambers, Bournemouth. solicitor; W. H. March, 6, Spinners' End, Cradley Heath, engineer; R. J. Tyrrell, Hengestbury House, Christchurch, draper; G. V. Mitchell, St. Peter's Chambers, Bournemouth, architect; E. W. Jenkins, Foydene, Boscombe, Bournemouth, contractor; H. E. Hawker, St. Peter's Chambers, Bournemouth, architect; F. W. Ramsay, Wellington-road, Bournemouth, surgeon.

Kynoch Ltd.—CAPITAL £500,000, in £10. shares. This company has been formed to acquire and carry on the business of ammunition and explosives manufacturers, soap, candle, and glycerine manufacturers, etc. The subscribers to the memorandum of association are: A. Chamberlain, J.P., Moor Green Hall, Birmingham; J. P. Lacy, Norlands, Edgbaston, Birmingham, manufacturer; G. Hookham, Gilbertstone, South Yardley, Birmingham, manufacturer; D. Clerk, 41, Bedford-square, W.C., engineer; F. Huxham, Riverside, Perry Bar, Birmingham, C.A.; A. T. Cocking, 4, Robert-road, Handsworth, Birmingham, manufacturer; J. S. Nettlefold, Beechenhurst, Selly Hill, Birmingham, manufacturer.

IMPORTS OF CHEMICAL PRODUCTS AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 6th.

Acetate of Lime—
U. States, 8.6 bgs. H. Wallace & Co.

Acetic Acid—
Holland, 136 pks. Little & Johnston
" 80 Philipps & Graves
" 72 cks. A. & M. Zimmermann

Alkali—
France, 40 c. J. Barber & Co.

Alum—
Holland, 220 pks. Ohlenschlager Brs.

Ammonium Chloride—
Holland, 30 cks. H. Lorenz

Antimony Ore—
Japan, 50 t. T. Merry & Son

Asbestos—
Italy, 225 Pickford & Co.
Germany, 14 Craven & Co.
Italy, 10 Davis & Soper

Barium Chlorate—
Germany, 12 cks. Petri Brs.

Barytes—
Holland, 50 cks. J. L. Lyon & Co.
" 69 Henu, Peron & Co.
" 67 bgs G. Rahn & Co.
" 66 W. Harrison & Co.

Borax—
U. S. Pacific, 422 sks. Pacific Borax & R. Chem. Wks., Ltd.

Bromide of Iron—
Germany, 10 cks. A. & M. Zimmermann

Camphor—
China, 100 cs. City Coml. Wf., Ltd.
" 201 T. Merry & Son
Hong Kong, 65 tubs Lewis & Peat
Germany, 139 R. Warner & Co.
" 4 cks. L. & I. D. Jt. Co.
" 100 cs. City Coml. Wf. Hale & Son

Caoutchouc—
Natal, 32 c. Hale & Son
U. States, 30 Major & Field
Portugal, 12 L. & I. D. Jt. Co.
U. S. Col., 40 Stiebel Brs.
Natal, 14 L. & I. D. Jt. Co.
Zanzibar, 28 S. Figgis & Co.
Sydney, 28 Chantard & Christensen

Castor Oil—
Cooktown, 1 1/2 L. & I. D. Jt. Co.
Canada, 2 A. Figgott
France, 1 Procter Brs.
" 2 Culverwell, Brooks & Co.
Zanzibar, 10 L. & I. D. Jt. Co.

Carbolic Acid—
Germany, 38 pks. J. G. Back

Castor Oil—
France, 66 brls. Mordaunt Brs.

Caustic Potash—
Germany, 75 drs. J. R. Francis & Co.

Chemicals (otherwise undescribed)
Germany, 412 F. Boehm
Belgium, 58 O. Scholzig
" 327 Société John Cockerill
Germany, 35 H. Lambert
Holland, 6 F. Boehm
" 20 A. C. Lloyd
France, 18 Henu, Peron & Co.
Belgium, 4 T. H. Lee
Germany, 17 City Coml. Wf.
U. States, 150 E. E. Bailes
" 722 F. Parker
Germany, 564 T. H. Lee
" 201 L. & I. D. Jt. Co.
" 571 A. & M. Zimmermann

Cream of Tartar—
France, 5 cks. M. Ashby, Ltd.
" 2 McNamara & Co.
Italy, 25 B. Jacob & Sons
Holland, 10 Kirkpatrick & Co.
France, 25 B. & F. Wf. Co.

Dextrine—
Germany, 150 bgs. W. Balchin
" 200 J. Barber & Co.

Dyestuffs—
Argois
Austria, 3 bgs. M. D. Co.
Italy, 748 B. Jacob & Sons
Cochineal
Canaries, 1 bg. J. W. Borland
" 2 G. S. Bruce
" 2 Knowles & Foster
" 4 Sperling & Williams

Extracts
U. States, 30 pks. Williams, Torrey & Co.
" 1 brl. Rosenberg, Loewe & Co.
France, 20 cs. Bailey & Leatham
U. States, 202 pks. Skilbeck Brs.
Denmark, 2 cks. Sorensen & Co.
" 2 M. D. Co.
France, 120 L. J. Levinstein & Sons

Gambier
E. Indies, 1,010 pks. Bellamy's Wf., Ltd.
Singapore, 460 bgs. Beresford & Co.
" 1,124 bls. E. Boustead & Co.

Indigo—
" 2 cs. Cayzer, Irvine & Co.
Belgium, 3 cts. Société John Cockerill
E. Indies, 34 Forbes, Forbes & Co.
" 135 Wallace Brs.
" 78 H. Johnson & Sons
" 78 P. Macfadyen & Co.
" 11 R. von Glehn & Sons
" 51 Parry & Co.
" 26 Arbuthnot, Latham & Co.

Infusorial Earth—
Germany, 50 t. A. Haacke
Holland, 14 T. H. Lee

Lamp Black—
U. States, 100 cs. L. & I. D. Jt. Co.
" 56 hds. J. Melvin

Manganese—
Germany, 5 t. Soundy & Sons
" 1 H. Honychurch
Japan, 200 Taylor Brs.
" J. Swire & Sons

Manure—
France, 50 t. W. E. Cole
Germany, 100 F. W. Berk & Co., Ltd.
Sydney, 2 G. S. Vuill & Co.
E. Indies, 382 Fox, Roy, & Co.
Belgium, 235 West & Penrose
Algeria, 450 J. Gibbs & Co.
Belgium, 200 Anglo-Contl. G. Wks.
Germany, 34 T. Ronaldson & Co.
" A. J. Luke & Co.

Methyl Alcohol—
France, 20 dms. W. S. Barber

Mica—
E. Indies, 2025 W. M. Smith & Sons

Molasses—
U. States, 220 cks. 1,220 c. Newcomb Lige. Co.
" 280 1,500 Ohlenschlager Brs.
" 290 1,200 E. Falconer

Nickel Salts—
Germany, 7 cks. Petri Brs.

Ochre—
Holland, 7 pks. Philipps & Graves
U. States, 140 brls. Williams, Torrey, & Co.

Pitch—
Germany, 65 brls. J. E. Powell
France, 70 H. Hill & Sons

Plumbago—
Germany, 37 cks. B. Gallaway & Son
Ceylon, 238 T. Palmer
" 17 Rots & Dearing
Sydney, 8 cs. Cayzer, Irvine & Co.
" H. Hill & Son

Potassium Carbonate—
France, 140 c. Petri Brs.
Belgium, 110 "

Potassium Chloride—
Germany, 508 bgs. Bessler, Waechter, & Co.
" 150 Perkins & Hamm

Potassium Oxalate—
Holland, 30 kgs. R. W. Greeff & Co.

Quicksilver—
Spain, 37 bls. H. J. Enthoven & Son
" 5,000 flasks. N. M. Rothschild & Son
" 37 bls. L. & I. D. Jt. Co.

Rosin—
Germany, 23 brls. L. & I. D. Jt. Co.
France, 15 A. Taylor & Co.

Rosin Oil—
France, 200 brls. Fleming's Oil & Chemical Co.

Saltpetre—
Germany, 500 bgs. C. Wimbly & Co.

Soda—
Holland, 46 c. J. Osm
Germany, 2,000 R. W. Green
Holland, 400 R. W. Greeff & Co.

Sodium Bichromate—
Germany, 50 cks. A. J. Nolt

Sodium Sulphate—
Holland, 30 cks. H. Linné

Starch—
Germany, 45 cs. Philipps & Germ. C. Tennant, Son, & Co.
U. States, 750 bgs. Union L. Co.
Holland, 100 W. G. Taylor & Co.
" 4,011 cs. Little & Johnston
U. States, 100 bgs. J. Barber & Co.
France, 350 cs. E. & T. Pelt
Holland, 740 A. Stuck
" 172 Henu, Peron, & Co.
Belgium, 240 Philipps & Graves
Holland, 148 Leach & Co.
U. States, 200 bgs. T. H. Lee
" 900 J. Fawc
" 1,040 Knowles & Padgett
Germany, 6 cks. Ohlenschlager Brs.
Belgium, 300 cs. T. H. Lee
" E. & T. Pelt

Stearine—
France, 71 bgs. Beresford & Co.
" 137 H. Hill & Son
Holland, 51 bls. 13 cks. J. Osm
" 60 bgs. H. Hill & Son
France, 220 G. Bow & Co.

Sulphur—
Italy, 5 t. P. Hecker & Co.

Sulphuric Acid—
Germany, 40 pks. Elkan & Co.

Talc—
Italy, 221 Imp. Asbestos Co.
France, 16 W. Harrison & Co.
" 80 Blackwell & Co.

Tartaric Acid—
Holland, 10 pks. B. & F. Wf. Co.

Ultramarine—
Germany, 5 pks. H. Brooks & Co.
Belgium, 2 W. Harrison & Co.
Holland, 12 Philipps & Germ.

Yarnish—
Germany, 12 pks. H. Lambert
U. States, 6 Dawson Brs.
" 7 Williams, Torrey, & Co.

6 cks.	B. & F. Wf. Co.
39 cks.	D. Storer & Sons
24	W. A. Rose & Co.
19	Perkins & Homer
46	Randall Bros.
8	A. & M. Zimmermann
40	J. L. Lyon & Co.
18	J. Watt & Son
15 brls.	J. L. Lyon & Co.
40	Leach & Co.
800 pks.	W. E. Bott & Co.
1,000	J. Sharp
1,117	E. J. & W. Goldsmith
80	Henderson, Craig & Co.
650	W. G. Taylor & Co.
272	C. S. Lovell
852	W. G. Taylor & Co.
250	Christophersen, Andrews, & Co.
260	Phillips & Graves
64	G. Rahn & Co.
3,000	F. Claydon & Co.
340	J. Owen
2,748	E. J. & W. Goldsmith
20	Bailey & Leatham
164	Becker & Co.
403	W. Friedlaender
160	Christophersen, Andrews, & Co.
202	M. D. Co.
49 brls.	W. Balchin
66 cks.	1 cs. Hernu, Peron, & Co.
80	Robertson, Selley, & Co.
100 brls.	M. Ashby, Ltd.
100 cks.	Prprs. Dowgate Dk.
35	R. W. Greeff & Co.
25	M. Ashby, Ltd.
163 brls.	"

LIVERPOOL.

Week ending March 4th.

Hydrate—	6 cks.	J. T. Fletcher & Co.
—	8 brls.	
Sulphate—	5 cks.	
—	33 cks.	150 bgs.
—	22	67
—	1,000 bgs.	
—	1,120 bgs.	
—	4,500	
Acid—	5 cks.	
—	1,978 sks.	A. & S. Henry & Co.
—	1,200	
—	2,232	Balfour Williamson & Co.
Bisulphide—	1 cs.	
Oil—	93 brls.	
ed Oil—	10 brls.	
f Tartar—	28 cks.	
—	1 basket	
—	774 bxs.	
—	145 bxs.	
—	387 chts.	
—	2 cs. T. Meadows & Co.	
—	1 bx. Schoulaah	
—	Fugel & Co.	
—	10	
—	380 t.	

Myrabolams	Bombay,	247 bgs.	E. D. Sassoon & Co.
—	—	1,180	
Saffron	Valencia,	1 cs.	
Shumac	Palermo,	250 bgs.	H. Rooke, Son & Co.
—	—	760	20 bls.
Valonia	Syria,	578 bgs.	G. T. Scrin
—	—	190	
—	Smyrna,	52 t.	10 c. G. Essayan & Co.
—	—	1,373 bgs.	
—	—	157	210 Barry Bros.
—	Antwerp,	34	J. T. Fletcher & Co.
Farina—	Havre,	4,200 sks.	Cunard S. S. Co., Ltd.
Gelatine—	Rouen,	53 cs.	Co-op W'sale Society, Ltd.
Glucose—	Baltimore,	100 brls.	
—	New York,	600	T. M. Duche & Sons
—	Hamburg,	1,150	
—	—	20 cks.	
Glue—	Hamburg,	100 bgs.	
—	Rouen,	39 cks.	Co-op W'sale Society, Ltd.
—	Boston,	50 kgs.	5 brls. 36 crts. T. Robinson & Son
—	Rotterdam,	120 bgs.	
Limestone—	Antwerp,	2 crts.	J. T. Fletcher & Co.
Manganese Ore—	Calcutta,	qty.	
—	Poti,	1,975 t.	
Manure—	Philadelphia,	218 bgs.	
Ochre—	Marseilles,	9 brls.	
—	Rouen,	40 cks.	Co-op W'sale Society, Ltd.
Oxalic Acid—	Rotterdam,	4 cks.	
Paint—	Rotterdam,	10 brls.	
Paraffin Scale—	New York,	1,510 brls.	Thompson & Bedford
—	Philadelphia,	213	
Phosphates—	Antwerp,	100 bgs.	
Pitch—	Marseilles,	95 brls.	
Potash—	Dunkirk,	21 dms.	Bancroft & Co., Ltd.
—	Antwerp,	20	
—	—	16	
Pumice Stone—	Leghorn,	6 cs.	
—	Messina,	100 bgs.	G. G. Blackwell, Sons & Co.
—	—	6 cs.	
Pyrites—	Huelva,	1,113 t.	Matheson & Co.
Rosin—	Boston,	14 brls.	
Salt—	Bordeaux,	1 ck.	
Saltpetre—	Calcutta,	1,401 bgs.	Ralli Bros.
—	Bombay,	615	
—	Hamburg,	2 cks.	
Soap—	New York,	9 crts.	W. H. Pillin & Co.
—	Marseilles,	105 cs.	26 pks. 285 bxs.
—	Newport News,	200 brls.	
—	Boston,	3	
Soapstone—	Bordeaux,	400 bgs.	G. G. Blackwell, Sons & Co.
—	Philadelphia,	100	W. Harrison & Co.
Sodium Carbonate—	Genoa,	3 bgs.	

Starch—	Antwerp,	28 cs.	J. T. Fletcher & Co.
—	New York,	270	
—	Rotterdam,	80	1,200 bgs.
Stearine—	Antwerp,	37 bgs.	
—	New York,	10 hds.	
Sulphur—	Genoa,	100 bgs.	
—	Catania,	200	
Tallow—	New York,	250 tcs.	Armour & Co.
—	Boston,	102	
—	New York,	212	
—	Marseilles,	4 bgs.	
—	Rotterdam,	1 ck.	
—	Campana,	248	
Tar—	New York,	72 brls.	
Tartaric Acid—	Hamburg,	3 cks.	
Treacle—	New York,	250 brls.	
—	Philadelphia,	1,000	
Varnish—	New York,	9 brls.	W. A. Warren
—	—	17	
White Lead—	Rouen,	17 cks.	Co-op W'sale Society, Ltd.
—	Rotterdam,	60	
—	Antwerp,	24	J. T. Fletcher & Co.
Wood Pulp—	Gothenburg,	1,011 bds.	G. F. Green & Co.
—	Boston,	140	
—	Rotterdam,	72 bls.	
Zinc Oxide—	Rotterdam,	40 cks.	
—	Antwerp,	85 brls.	
Zinc White—	Rotterdam,	50 cks.	

MANCHESTER.

Week ending March 6th.

Acetate of Lime—	New York,	43 bgs.	
Alizarine—	Rotterdam,	12 cks.	1 bx. 24 brls.
Aluminous Cake—	Rotterdam,	25 cks.	
Ammonia—	Rotterdam,	12 bls.	
Ammonium Acetate—	Rotterdam,	2 brls.	
Aniline Colours—	Rotterdam,	4 bxs.	
Antimony Oxalate—	Rotterdam,	4 cks.	
Barytes—	Rotterdam,	200 bgs.	
—	Antwerp,	100	
Colours—	Boulogne,	18 cks.	3 cs.
—	Antwerp,	6	16
Copper Oxide—	Antwerp,	2 cks.	
Cream of Tartar—	Rotterdam,	6 cks.	
Creosote Salt—	Rotterdam,	4 cks.	
Dextrine—	Hamburg,	100 bgs.	
Farina—	Hamburg,	125 bgs.	
Glucose—	New York,	399 brls.	
Glue—	Rotterdam,	5 bgs.	
—	Hamburg,	2 cks.	
—	Antwerp,	4 bls.	
Glycerine—	Hamburg,	6 cks.	
Indigo—	Rotterdam,	1 chst.	
Limestone—	Antwerp,	4 crts.	J. T. Fletcher & Co.

Litharge—	Antwerp,	7 cks.	
Logwood—	Black River,	483 t.	
—	Jamaica,	450	Simpson, Howden, & Co.
—	Habbox,	450	
—	Yucatan,	450	
Ochres—	Boulogne,	1 ck.	
Paraffin Scale—	New York,	945 brls.	Anglo-American Oil Co.
Pitch—	Antwerp,	50 cks.	
Potash—	Antwerp,	20 dms.	
—	Rotterdam,	4 cks.	
Potassium Prussiate—	Antwerp,	20 cks.	
Rosin—	Wilmington,	4,178 brls.	Smith & Forest
—	N. Carolina,		
Soda—	Antwerp,	4 cks.	
Sodium Sulphate—	Rotterdam,	3 dms.	
Starch—	Rotterdam,	220 cs.	
—	Ghent,	160	
—	New York,	2,170 sks.	T. M. Duche & Sons
—	—	748	
Stearine—	New York,	50 hds.	Co-op W'sale Society
Tannic Acid—	Rotterdam,	5 cks.	
Tar Waste—	Rotterdam,	1 ck.	
Tartaric Acid—	Rotterdam,	13 cks.	
Wood Pulp—	Drammen,	1,410 bls.	9 bds.
—	Gothenburg,	4,740	
—	Rotterdam,	28	
Zinc Ashes—	Antwerp,	18 cks.	
Zinc Chloride—	Rotterdam,	4 dms.	

HULL.

Week ending March 6th.

Acids—	Bari,	68 pks.	Wilson, Sons, & Co., Ltd.
Antimony—	Hamburg,	10 cs.	Wilson, Sons, & Co., Ltd.
Barytes—	Bremen,	40 cks.	G. Holmes & Co.
—	Antwerp,	175	Blundell, Spence, & Co.
—	—	200 bgs.	
Camphor—	Hamburg,	3 cks.	Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed)	Hamburg,	6 cks.	Wilson, Sons, & Co., Ltd.
—	Bremen,	496 pks.	Sons, & Co., Ltd.
—	—	1 kg.	Veltmann & Co.
—	Christiania,	60 cks.	Wilson, Sons, & Co., Ltd.
—	Antwerp,	147 pks.	"
Cod Oil—	Bergen,	66 brls.	Wilson, Sons, & Co., Ltd.
—	Christiansand,	32	"
Colours—	Rotterdam,	2 brls.	Hutchinson & Son
—	Hamburg,	7 pks.	G. Malcolm & Son
—	Rotterdam,	163	W. & C. L. Ringrose
—	Hamburg,	2	G. Malcolm & Son
Cream of Tartar—	Rotterdam,	2 cks.	W. & C. L. Ringrose
Cryolite—	Copenhagen,	2 cks.	Wilson, Sons, & Co., Ltd.

Dyestuffs— Alizarine Rotterdam, 47 brls. W. & C. L. Ringrose 15 pks. Indigo Rotterdam, 2 cts. Hutchinson & Son Madder Rotterdam, 3 cks. Hutchinson & Son Shumac Trieste, 140 bgs. Wilson, Sons, & Co., Ltd. Palermo, 1,175 Parina— Harlingen, 200 bls. Hutchinson & Son Glucose— Rotterdam, 60 bgs. Hutchinson & Son Glue— Rouen, 16 cks. Rawson & Robinson 15 bls. Velmann & Co. Bremen, 30 bgs. Kaolin— Rotterdam, 231 bgs. Hutchinson & Son Lactic Acid— Boston, 30 brls. Wilson, Sons, & Co., Ltd. Limestone— Antwerp, 2 cts. Wilson, Sons, & Co., Ltd. Lithopone— Amsterdam, 40 cs. Hutchinson & Son Logwood— Hamburg, 1,501 pks. Wilson, Sons, & Co., Ltd. Manure— Ghent, 250 l. Mica— Hamburg, 1 cs. Paint— Boston, 100 cs. Wilson, Sons, & Co., Ltd. Pitch— Copenhagen, 50 brls. Wilson, Sons, & Co., Ltd. Potash— Rotterdam, 20 cks. Hutchinson & Son Antwerp, 1 Bailey & Leatham Pumice Stone— Messina, 50 bgs. Wilson, Sons, & Co., Ltd. Rosin— Savannah, 1,250 brls. Saltpetre— Hamburg, 50 bgs. Wilson, Sons, & Co., Ltd. Soap— Bari, 10 cs. Sodium Sulphate— Rotterdam, 3 dms. W. & C. L. Ringrose Starch— Bremen, 703 pks. Velmann & Co. Ghent, 88 cs. Wilson, Sons, & Co., Ltd. Antwerp, 20 pks. Bailey & Leatham 25 bgs. Stearine— Antwerp, 10 cs. Wilson, Sons, & Co., Ltd.	Sulphur— Catania, 393 pks. Wilson, Sons, & Co., Ltd. Tar— Amsterdam, 6 cks. W. & C. L. Ringrose Treacle— Boston, 500 brls. Wilson, Sons, & Co., Ltd. Turpentine— Savannah, 2,300 brls. Ultramarine— Rotterdam, 6 cks. W. & C. L. Ringrose Waste Salt— Hamburg, 203 bgs. Furley & Co. 504 White Lead— Rotterdam, 20 cks. Hutchinson & Son Antwerp, 67 Bailey & Leatham 32 W. & C. L. Ringrose 34 Hutchinson & Son Wood Pulp— Hango, 330 bls. J. Good & Sons 10 Bailey & Leatham Christiania, 200 70 cs. Wilson, Sons, & Co., Ltd. Drontheim, 320 Hamburg, 40 Zinc Ashes— Antwerp, 10 cks. Bailey & Leatham 	Glue— Hamburg, 10 cks. Rotterdam, 40 bgs. J. Rankine & Son Lamp Black— Gothenburg, 20 cs. 5 brls. Lead Acetate— Hamburg, 8 cks. Manganese— New York, 131 cks. Ochre— Marseilles, 59 brls. Pitch— Hamburg, 115 brls. Potash— Rotterdam, 50 cks. J. Rankine & Son Potassium Nitrite— Hamburg, 50 cks. Potassium Oxalate— Rotterdam, 5 kgs. J. Rankine & Son Rosin— New York, 101 brls. Sodium Acetate— Antwerp, 5 cks. Hamburg, 20 Starch— Antwerp, 65 cs. Portland, 300 bgs. Rotterdam, 112 cs. J. Rankine & Son Amsterdam, 80 bxs. New York, 100 774 bgs. Treacle— New York, 50 brls. Waddell & Bryson 50 Ultramarine— Antwerp, 30 cs. Varnish— New York, 33 brls. White Lead— Rotterdam, 104 cks. J. Rankine & Son Wood Pulp— Christiania, 2,884 bls. 17 cs. Gothenburg, 563 Drontheim, 480 Zinc Oxide— Antwerp, 25 cks. Rotterdam, 25 J. Rankine & Son New York, 100 brls. 	Magnesia— Hamburg, 12 cs. Tyne S. S. Co. Ochre— Rouen, 85 cks. J. Brown Pitch— Rotterdam, 11 cks. Tyne S. S. Co. Pyrites— Huelva, 1,451 l. Tyne S. S. Co. Sulphur & Copper Soap— Rotterdam, 5 cs. Tyne S. S. Co. Wood Pulp— Christiania, 120 bls.
--	---	--	---

GOOLE.

Week ending March 3rd.

Alizarine—	Rotterdam, 45 cks.
Alkali—	Calais, 4 cks.
Anthracene—	Boulogne, 2 cks.
Antimony—	Boulogne, 1 ck.
Dyestuffs (otherwise undescr.)	Boulogne, 2 cks. 7 cs. 26 sh.
	Rotterdam, 409 104
	Hamburg, 44 l.
Farina—	Amsterdam, 300 bgs.
Logwood—	Belize, 444 l.
Ochre—	Calais, 37 cks.
Potash—	Rotterdam, 10 cks.
	Antwerp, 4
Pyrites—	Huelva, 1,257 l.
Saltpetre—	Hamburg, 56 cks.
Sodium Silicate—	Rotterdam, 1 ck.
Starch—	Ghent, 445 cs.
	Antwerp, 25 bgs.
Waste Salt—	Hamburg, 550 bgs.

GRIMSBY.

Week ending March 6th.

Caoutchouc—	Hamburg, 7 bxs. 1 cs.
	Rotterdam, 2
	Antwerp, 7
Chemicals (otherwise undescr.)	Hamburg, 3 cks. 9 cs.
	Rotterdam, 14
	Antwerp, 6
Colours—	Antwerp, 37 cks. 4 sh.
	Hamburg, 21
Farina—	Hamburg, 20 bgs.
Lead Acetate—	Hamburg, 29 cks.
Soap—	Malmo, 1 l.
Starch—	Antwerp, 100 cs.

EXPORTS OF CHEMICAL PRODUCTS

OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 10th.

Acids—	Bombay, 3 cs. £14
	Huelva, 18 5 c.
	Durban, 3 l. 8 37
Alkali—	Sydney, 1 l. 10 c. £20
	Lyttelton, 1 15 23
	Dunedin, 2 4 8
Ammonia (Liquid)—	Natal, 4 cs. £11
	Chingoo, 20 bls. 121
Ammonium Carbonate—	Yokohama, 1 l. £27
Ammonium Chloride—	Gothenburg, 1 l. 13 c. £54
Ammonium Sulphate—	Cologne, 150 l. £1,180
	Hamburg, 300 2,380
	Bagota, 100 23 6
	Bremen, 100 800
	Ghent, 200 1,600
	Amsterdam, 300 2,412
	Ostend, 604 10 4,830
	Antwerp, 152 1,200
	Dunkirk, 400 3,190
Amorphous Phosphorus—	Malta, 1 ck. £14
Anhydrous Ammonia—	Cologne, 11 c. £250

Colombo, 3	80
Barium Nitrate—	New York, 3 l. 10 c. £63
Bleaching Powder—	Dunkirk, 2 l. 10 c. £25
	Natal, 20 cs. 15
Boracic Acid—	Rotterdam, 4 cks. £30
Borax—	Algoa Bay, 25 cs. £115
	Brisbane, 3 l. 60
	Rotterdam, 1 1 c. 30
Calcium Carbide—	Algoa Bay, 6 drs. £63
Calcium Phosphide—	Amsterdam, 6 cs. £50

Carbolic Acid—	New York, 10 cks. 6 cs.
	Antwerp, 24
	Cologne, 24
	Rotterdam, 40
	Bombay, 8 570 lbs.
Caustic Soda—	Natal, 10 c.
	Townsville, 11
	Philadelphia, 66 l. 19
	Algoa Bay, 2 8
Chemicals (otherwise undescr.)	Adelaide, 21 kgs. 3 pks. 150
	Demerara, 100 carbons 23
	Kurrachee, 2

1 t. 8 c.	60
1 16 10	92
5 3	90
3 cks. 4 kgs. 22	55
3 6 c.	66
15 kgs. 5	158
2 20	45
5 t. 12 c.	250
10 400	
1 cks. 56 pks. 3 kgs. 2	65
8 t. 19 c.	145
11 c. 5 kgs.	£87
5 30	
3 14	
2 19	
1 14	
1 cks. 39	170
4 20	
17 cks.	£690
6 318	
25 cks.	60
3 60	
4 cks.	£50
10 kgs.	37
189 cks.	£1,744
269	1,203
74 cks.	£187
19 puns.	277
23,500 gallons	£123
100 brls.	53
322 bgs.	£80
450	77
20 cs.	£150
100 brls.	£365
87 cks.	£84
125 bgs.	93
100	55
1,313 t.	£2,000
106	130
1,250	1,520
6 brls.	20
548 cks.	325
200	60
3,610 bgs.	642
1,210	2,037
12 brls.	£140
16 brls.	£14
420 drs.	24
148 cks.	£97
49	90
10	10
42	40
ts (otherwise undes)	—
50 brls.	£23
hate—	—
5 t.	£91
10 8 c.	185
10 18	175
2 10	41
2 10	44
10 11	
1 24	
20 300	
artar—	—
2 cks.	£82
5 c.	21
2 cs.	20
10 41	
1 15	143
2 179	
1 3	102
3 102	343
artar and Tartaric	—
1 t. 10 c.	£150
170 cks.	£230
100 drs.	42
15 75	
40 18	
7 t. 12 c. 15 cs.	417
107	167
9 13	330
115 t. 18 c.	£575

Guanos —		
Dunkirk, 06 t.	£455	
Hypophosphites of Lime and Soda —		
New York, 14 cs.	£216	
Iron Sulphate —		
Singapore, 5 t. 11 c.	£12	
Magnesia —		
Sydney, 12 c.	£15	
Manure —		
Genoa, 10 t.	£40	
Martinique, 20	185	
Landerneau, 305	1,000	
Penang, 32 10 c.	326	
Bordeaux, 60	210	
Rouen, 60	250	
Cherbourg, 120	360	
Rochefort, 100	370	
Grenada, 10	80	
Guadeloupe, 296	2,960	
Havre, 30	100	
Malaga, 14 16	120	
Nitric Acid —		
Jersey, 34 carboys	£77	
Oxalic Acid —		
Sydney, 1 t.	£34	
Oxygen —		
Amsterdam, 1 cs.	£40	
Phosphorus —		
Calcutta, 2 cs.	£10	
Teneriffe, 1 t.	11	
Las Palmas, 1	11	
Potash Crystals —		
Malta, 1 ck.	£10	
Potassium Bicarbonate —		
Philadelphia, 1 t. 3 c.	£30	
Potassium Bichromate —		
Lyttelton, 1 t. 5 c.	£58	
Potassium Chlorate —		
Calcutta, 10 c.	£20	
Potassium Cyanide —		
Auckland, 5 t.	£467	
Townsville, 2 10 c.	220	
New York, 225 cs.	1,057	
Potassium Nitrate —		
Bagota, 13 c.	£10	
Potassium Prussiate —		
Genoa, 4 cks.	£50	
Philadelphia, 1 t.	169	
Lisbon, 1 t.	47	
New York, 63	908	
Saltpetre —		
Algoa Bay, 19 c.	£20	
Brisbane, 10	11	
Sydney, 19	23	
Guadeloupe, 203 t. 17	3,052	
Sheep Dip —		
Lyttelton, 100 dms.	£40	
Algoa Bay, 12 t. 3 c.		
2,500 pks.	3,000	1 138
Natal, 2	21	
E. London, 3 18	44	
M. Video, 2 15	50	
B. Ayres, 30 cs.	£128	
Soda —		
Delagoa Bay, 2 t. 9 c.	£9	
Soda Crystals —		
Gibraltar, 5 t.	£16	
Algoa Bay, 8 13 c.	24	
Sodium Bicarbonate —		
Valparaiso, 1 t.	£7	
Brisbane, 12 c.	10	
Algoa Bay, 2 13	32	
Sodium Hyposulphite —		
Lyttelton, 2 t. 2 c.	£11	
Sodium Peroxide —		
Melbourne, 1 cs.	£10	
Sodium Sulphite —		
Toronto, 1 t. 4 c.	£134	
Strontium Nitrate —		
New York, 6 t. 11 c.	£155	
Sulphur —		
Madeira, 2 t. 4 c.	£21	
Sulphuric Acid —		
Penang, 60 cs.	£41	
Cape Town, 6 t. 15 c.	37	
Superphosphates —		
Bagota, 5 t. 2 c.	£44	
Bordeaux, 15 2	45	
Tartaric Acid —		
Algoa Bay, 9 c.	£30	
Cape Town, 7	41	
Natal, 6	31	
Brisbane, 5	20	
Melbourne, 1 t. 5	05	
Adelaide, 1 5	139	
Fremantle, 2	12	

LIVERPOOL.

Week ending March 10th.

Albumen —		
New York, 10 t.	£890	
Alum —		
Havana, 12 t. 1 c.	£43	
Melbourne, 1	5	
Bourgas, 2	3 q.	9
Kustendjie, 3 1	24	
Sydney, 2 16	13	
Galatz, 11 3	53	
Ibrail, 5	25	
Kustendjie, 5 19	20	
Ammonia (Liquid) —		
Vera Cruz, 4 c. 2 q.	£5	
Ammonium Carbonate —		
Marseilles, 12 c.	£18	
Amsterdam, 10	14	
Genoa, 11 5	35	
Ammonium Chloride —		
Alexandria, 4 t.	£132	
Pernambuco, 4 c.	7	
Fiume, 10	17	
Iquique, 1 ck.	6	
Sydney, 5 11	102	
Smyrna, 2	68	
Amsterdam, 7	10	
Piræus, 6 3 q.	11	
Lagos, 3	6	
Ammonium Sulphate —		
Gd. Canary, 10 t.	£85	
Santos, 10 4 c. 2 q.	85	
Las Palmas, 20 5	162	
Valencia, 274 14 3	2,459	
Canaria, 9 15	75	
Dunkirk, 81 19 3	680	
Genoa, 50 2 1	400	
Ghent, 61 3 1	490	
Philadelphia, 45 8 1	376	
Rio de Janeiro, 1 19 1	19	
Bleaching Powder —		
Baltimore, 128 cks.		
Bombay, 10 cs.		
Calao, 6		
Lisbon, 23 20 brls.		
Malaga, 5		
Melbourne, 35		
N. Orleans, 83		
Nantes, 43		
Newport News, 105		
New York, 256		
Philadelphia, 118		
Portland, M., 21		
Rouen, 63		
Stettin, 20		
Boracic Acid —		
Progreso, 2 c.	£3	
Borax —		
Hamburg, 3 t. 1 c. 2 q.	£62	
Stettin, 10 12 3	23	
Antwerp, 17 19 1	285	
Rotterdam, 11 15		
Newfairwater, 1 11	32	
Ghent, 11 11		
Progreso, 9 9		
St. John, N. B., 2 5 3	42	
Gothenburg, 1 1 1	21	
Calcium Chloride —		
Colombo, 4 t. 2 c.	£9	
Hong Kong, 7 19	20	
Rouen, 5 3 3	259	
New York, 25 3 52		
Carbolic Acid —		
Hamburg, 11 t. 1 c.	£671	
Trieste, 12 8 dms. 7		
Old Calabar, 17 3 q. 79		
N. Orleans, 17 3	67	
Los Angeles, 2 8	96	
Calcutta, 7 15 2	152	
Bombay, 3 1	152	
Odessa, 7 1	178	
New York, 20 cks		
Hong Kong, 7 1 6		
Rouen, 1 10 3	92	
Caustic Soda —		
Adelaide, 35 dms.		
Alexandria, 21		
Amsterdam, 17		
Ancona, 80		
Baltimore, 375 40 brls. 50 bxs.		
Barcelona, 370 35 cks.		
Barri, 172		
Bilbao, 60		
Bremer, 5		
Calicut, 160		
Callao, 50		
Cartagena, 15		
Constantinople, 15		
Dunkirk, 35		
Fiume, 22		
E. London, 7 cs.		

Fairwater, 50	
Galatz, 85	
Genoa, 271	
Gothenburg, 2	
Guayaquil, 110	
Hamburg, 15	
Havre, 12	
Hong Kong, 100	
Huelva, 35	
Ibrail, 50	
Jaffa, 13	
Karachi, 1	
La Guayra, 35	
Libau, 150	
Lisbon, 17	
Marseilles, 45	
Melbourne, 17	
Nagasaki, 17	
Naples, 50	
N. Orleans, 436	
New York, 45	
Oporto, 30	
Para, 48	
Paris, 150	
Penang, 25	
Pernambuco, 73	
Philadelphia, 4	
Porr Natal, 25	
Rio de Janeiro, 231	
Rotterdam, 69	
Rouen, 50	
St. John, N. B., 20	
Seville, 45	
Stettin, 30	
Tarragona, 30	
Valencia, 20	
Venice, 3	
Yokohama, 3	
Chemicals (otherwise unassigned)	
New York, 15 t. 1 c. 3 q.	£430
Sydney, 15	22
Barcelona, 1	28
Odessa, 2	54
Genoa, 1	33
Rotterdam, 10	16
Newfairwater, 2 9	20
Naples, 10	16
Bari, 10	17
China Clay —	
Baltimore, 150 cks.	
Bordeaux, 10	
Boston, 1,302	
Calcutta, 160	
Marseilles, 20	
Oporto, 40	
Philadelphia, 200	
Portland, M., 1,046	
Rio de Janeiro, 32	
Coal Products —	
Aniline Colours	
Genoa, 1 cs. 17 kgs	
Philadelphia, 2 cks.	
Portland, M., 4	
Aniline Oil	
Genoa, 24 dms.	
Aniline Salts	
Barcelona, 11 cks.	
Genoa, 10 cs.	
Leghorn, 1	
Creosote Oil	
N. Orleans, 100 dms.	
Mirbane Oil	
New York, 25 cs.	
Naphthaline	
New York, 10 cks.	
Naphthol Colours	
New York, 15 cks. 11 pks.	
Naphthylamine Colours	
New York, 3 cks.	
Pitch	
Cettee, 433 t.	
Colon, 30 dms.	
Tar	
Accra, 15 brls.	
Guayaquil, 100 dms.	
Ibrail, 50	
Lagos, 4	
Philadelphia, 100	
Port Natal, 100	
Copper Sulphate —	
Konigsberg, 3 t. 4 c. 2 q.	£51
Oporto, 5 1 1	81
Rio de Janeiro, 19 15	
Messina, 5 3 81	
Singapore, 5	
Phillipville, 9 16	147
Varna, 3 14	57
Cettee, 159 15	3,750
Fiume, 21 3	339
Osiris, 7 13 3	124
Hamburg, 19 3	18
Ancona, 99 4 3	1,641
Venice, 212 17	3,652

thionate—
8 cks.

1 ck.

4 cks.

2

35 dms.

5 brls.

HULL.

ending March 6th.

21 cks.

17 dms.

Sulphate—

596 bgs.

122

976

120

190

25 cks.

Powder—

22 cks.

(otherwise undescribed)

1 ck. 20 cks.

64

10

15

2

500 bgs. 5

1 ck. 10

16

100

20

1

35

7

24

100

4

100 bgs.

30 cks.

Oil—

232 c.

1,180

122

34

173

6,073

563

888

52

300

(otherwise undescribed)

1 ck.

1 cks.

50 bgs.

1,200 cks.

201 c.

7

18

218

35

374

72

35

43

20

103

33

White—

21 bgs.

Colours—

12 cks. 5 cs.

9

6

1

15

1

8

19

3

10

New York, 160

Rotterdam, 8

Paraffin Wax—

Danzig, 100 bgs. 6 cs. 20 brls.

Libau, 350

Pitch—

Antwerp, 355 t.

Leghorn, 166

Tar—

Amsterdam, 6 cks.

Copenhagen, 10

Hamburg, 5

Marseilles, 31

Yarnish—

Antwerp, 1 ck. 1 cs.

Amsterdam, 9

Bombay, 2 75 dms.

Bremen, 1

Danzig, 1

Ghent, 5

Genoa, 1 tin

Hamburg, 5

Rotterdam, 1

Whiting—

Hamburg, 30 bgs.

GLASGOW.

Week ending March 11th.

Ammonium Sulphate—

Bordeaux, 5 t.

Cullera, 299 3½ c.

Italy, 36 15½

Reunion, 16 9½

Sicily, 2 19½

Valencia, 153 11½

Amsterdam, 76

Bruges, 465

Ghent, 50 5¾

Borax—

Algoa Bay, £39. 15s.

Coal Products—

Creosote Oil

Bordeaux, £40

U.S.A., 58

Duisberg, 164 t.

Pitch

Brindisi, £846

Italy, 1,665

Santander, 1,610

Antwerp, 1,133

Tar

Krugersdorp, £23

U.S.A., 53

Hamburg, 17 t.

Tar and Pitch

Mauritius, 41 t. 15c.

Coal Products (otherwise undes.)—

Rouen, £1,000

Amsterdam, 150

Rotterdam, 1,845

Dextrine—

U.S.A., 17 t. 11½ c.

Dyestuffs (otherwise undescribed)

Lutterbach, £24. 12s.

Extracts—

Christiana, £19

Gelatine—

Canada, £73

Glucose—

Cape Town, 12 c.

Canada, 2 t. 3

Iodine—

Hamburg, £1,470

Iron Sulphate—

Calcutta, 30 t. 17 c.

Linseed Oil—

Durban, 3 t. 5½ c.

Mauritius, 2 8½

Transvaal, 4 18

B. Ayres, 2 8

Manganese—

Paris, £50

Rotterdam, 13

Basle, 85

Manganese Oxide—

U.S.A., £110

Manure—

Pt. Limon, 20 t. 1¾ c.

Paint—

Callao, £52

Delagoa Bay, 36

Havana, 64

Krugersdorp, £59. 10s.

Calcutta, £458

B. Ayres, qty.

Bergen, 15 c.

Painters' Colours—

Malta, qty.

Pietermaritzburg.

Rotterdam, 3 c.

Algoa Bay, "

Calcutta, "

E. London, 265

Mauritius, 19

Pietermaritzburg, 288

Pt. Louis, 39

Cape Town, 59

Transvaal, 19

Paraffin Wax—

Barcelona, £47

Bari, 28

Bordeaux, 61

Fiume, 117

Italy, 37

Paris, 62

Rouen, 70

Spain, 100

Trieste, 38

Valencia, 20

Christiana, 60

B. Ayres, 28

Potassium Bichromate—

Rouen, £514

Ghent, 33

U.S.A., 1,146

Salt—

Mauritius, 300 t.

Sheep Dip—

B. Ayres, £135

Soap—

Transvaal, 4 t. 13½ c.

Delagoa Bay, 7 19½

Sodium Bichromate—

Rouen, 38 t. 1½ c.

Ghent, 4 2½

U.S.A., 28 13

Starch—

Rotterdam, £20

Sulphuric Acid—

Durban, £75

Tallow—

Trieste, £22

Tartaric Acid—

U.S.A., £85

Treacle—

Amsterdam, 6 t. 10 c.

Christiana, 5 19

Pretoria, 2

Bergen, 7 15½

White Lead—

B. Ayres, £10. 15s.

Transvaal, £21

Zinc Oxide—

Calcutta, £82

TYNE.

Week ending March 6th.

Alkali—

Savona, 9 c.

Rotterdam, 3 t. 17

Bergen, 2 19

Amsterdam, 28

Alum Earth—

Copenhagen, 9 t. 19 c.

Ammonium Sulphate—

Dunkirk, 50 t. 10 c.

Antimony—

Antwerp, 9 t. 10 c.

Rotterdam, 2 10

Barium—

New York, 5 t. 5 c.

Barytes—

New York, 17 t. 5 c.

Bleaching Powder—

Antwerp, 10 t.

New York, 7 11 c.

Aarhuus, 25 6

Rotterdam, 17 12

Horsens, 2 19

Bergen, 15 1

Christiana, 10 4

Amsterdam, 16 3

Gothenburg, 30 5

Castor Oil—

Bergen, 14 c.

Caustic Soda—

Antwerp, 20 t. 9 c.

New York, 183 14

Hamburg, 10 3

Aarhuus, 1 3

Christiana, 2 17

Amsterdam, 13 18

Gothenburg, 10 3

Copperas—

Copenhagen, 5 t. 1 c.

Guano—

Dunkirk, 503 t. 1 c.

Gypsum—

New York, 39 t. 15 c.

Lamp Black—

Rotterdam, 1 t. 11 c.

Litharge—

Hamburg, 2 t. 13 c.

Christiana, 1 8

Amsterdam, 2 2

PRICES CURRENT.

WEDNESDAY, MARCH 17TH,

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	&	8/9
Glacial	per cwt.	40/-		
Arsenic S.G., 2000	per lb.	1	4	0
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	per bottle	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	per lb.	0	0	1½
Oxalic	nett	0	0	3½
Phosphoric, 1750	per lb.	0	0	11½
Picric	per lb.	0	0	11
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	per ton	5	10	0
(Pyrites, 168°)	per ton	3	0	0
(150°)	per ton	1	5	0
(free from arsenic, 145°)	per ton	1	7	6
Sulphurous (solution) S.G. 1025	per lb.	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	per lb.	0	1	1
Arsenic, white powdered	nett per ton	24	10	0
Alum (loose lump)	per ton	4	10	0
Alumina Sulphate (pure)	per ton	4	2	6
Aluminoferrous	per ton	2	5	0
Aluminium (Ingot metal 98/99½ %)	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	3
" 880=28° B.	per lb.	0	0	2½
" =24° B.	per lb.	0	0	1½
Carbonate	nett	0	0	3
Muriate	per ton	18	15	0
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	&	33/-
Nitrate	per ton	33	0	0
Phosphate	per lb.	0	0	4½
Sulphate (grey) London	per ton	8	5	0
(grey) Hull	per ton	8	5	0
Aniline Oil (pure)	per lb.	0	0	8
Aniline Salt	per lb.	0	0	7½
Antimony	per ton	31	0	0
(tartar emetic)	per lb.	0	0	9
(golden sulphide)	per lb.	0	0	10
Barium Chloride	per ton	6	17	6
Carbonate (native)	per ton	3	10	0
Sulphate (native levigated)	per ton	42/6	to	65/-
Bleaching Powder, 35 %	nett	6	10	0
Liquor, 7 %	per ton	3	10	0
Bisulphide of Carbon	per lb.	13	0	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	per ton	15/-	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	7
Magenta	per lb.	0	3	0
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	8
Benzol, 90's	per gallon	0	2	10
50/90	per gallon	0	2	6
Carbolic Acid (crude 60°)	per gallon	0	2	5
(crystallised 40°)	per lb.	0	0	7½
(liquid 95/97 %)	per gallon	0	0	10
Creosote (ordinary)	per ton	0	0	2
(filtered for Lucigen light)	per ton	0	0	2½
Crude Naphtha 30 % @ 120° C.	per ton	0	1	1
Grease Oils, 22° Tw.	per ton	2	15	0
Pitch, f.o.b. Liverpool or Garston	per ton	1	3	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	8
Copper	per ton	49	15	0
Sulphate	per ton	18	15	0
Oxide (copper scales)	per ton	44	10	0
Glycerine (crude)	per ton	37	10	0
(distilled S.G. 1250°)	per ton	70	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	10	0
Sulphide (antimony slag)	per ton	2	0	0
Lead (sheet) for cash	per ton	12	15	0
Litharge Flake (ex ship)	per ton	14	15	0
Acetate (white)	per ton	23	0	0
brown	per ton	15	10	0
Carbonate (white lead) pure	per ton	16	15	0
Nitrate	per ton	1	0	0

Lime, Acetate (brown) (ex ship)	per ton	4
(grey) (ex ship)	per ton	8
Magnesium (ribbon and wire)	per oz.	0
Chloride (ex ship)	per ton	3
Carbonate	per cwt.	1
Calcined Magnesia	per ton	9
Sulphate (Epsom Salts)	per ton	2
Manganese, Sulphate	per ton	16
Borate	per cwt.	2
Ore, 70 %	per ton	3
Methylated Spirit, 61° O.P.	per gallon	0
Naphtha (Wood), Solvent	per ton	0
Miscible, 60° O.P.	per ton	0
Oils:—		
Cotton-seed	per ton	15
Linseed	per ton	16
Petroleum, American	per gallon	0
Stearine	per ton	19
Phosphorus (yellow)	per lb.	0
(red)	per lb.	0
Potassium (metal)	per oz.	0
Bichromate	nett per lb.	0
Carbonate, 90% (ex ship)	per ton	17
Chlorate	per lb.	0
Cyanide, 98%	per lb.	0
Hydrate (Caustic Potash) 90%	per ton	24
(Caustic Potash) 75/80%	per ton	20
(Caustic Potash) 70/75%	per ton	20
Nitrate (refined)	per cwt.	1
Permanganate	per cwt.	3
Prussiate Yellow	per lb.	0
Sulphate, 90% (ex ship)	per ton	9
Muriate, 80% (do.)	per ton	8
Silver (metal)	per oz.	0
Sodium (metal)	per lb.	0
Carb. (refined Soda-ash) 48%	nett per ton	4
(Caustic Soda-ash) 48%	per ton	4
(Carb. Soda-ash) 48%	per ton	4
(Alkali) 58%	per ton	3
(Soda Crystals)	per ton	2
Acetate (ex-ship)	per ton	13
Arseniate, 45%	per ton	15
Chlorate	per lb.	0
Borate (Borax)	nett, per ton	18
Bichromate	per lb.	0
Hydrate (77 % Caustic Soda) (f.o.b.)	nett per ton	9
(74 % Caustic Soda)	per ton	8
(70 % Caustic Soda)	per ton	7
(60 % Caustic Soda)	per ton	6
(pure liquor 90° Tw.)	per ton	3
77/78 % powdered (99 % hydrate)	per ton	13
Bicarbonate	per ton	0
Hyposulphite	per ton	5
Manganate, 25%	per ton	15
Nitrate (95 %) ex-ship Liverpool	per cwt.	0
Nitrite, 98 %	per ton	30
Phosphate	per ton	12
Silicate (glass)	per ton	4
(liquid, 100° Tw.)	per ton	3
Stannate, 40 %	per cwt.	3
Sulphate (Salt-cake)	per ton	0
(Glauber's Salts)	per ton	1
Sulphide	per ton	6
Sulphite	per ton	5
Strontium Hydrate, 100%	per ton	3
Sulphocyanide Ammonium, 95 %	per lb.	0
Barium, 95 %	per lb.	0
Potassium	per lb.	0
Sulphur (Flowers)	per ton	7
(Roll Brimstone)	per ton	6
Brimstone: Best Quality	per ton	4
Superphosphate of Lime (26%)	per ton	2
Tallow	per ton	18
Tin Crystals	per lb.	0
English Ingots	per ton	63
Zinc Spelter	per ton	17
Chloride (solution, 100° Tw.)	per ton	5

THE CHEMICAL TRADE JOURNAL

AND
OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

14.

SATURDAY, MARCH 27, 1897.

Vol. XX.

Contents.

PAGE	PAGE
217	Miscellaneous Chemical Market .. 224
218	Report on Manure Material .. 224
219	Liverpool Oil and Colour Market.. 224
219	The Metal Markets .. 225
220	West of Scotland Chemicals .. 225
220	Hull Paint, Oil, and Colour Report .. 225
221	Tyne Chemical Report .. 225
222	New Companies .. 225
222	Imports .. 226
223	Exports .. 228
223	Prices Current .. 232
224	
224	

VERTISEMENTS.

DISTILLATION.—Manager, sixteen years' experience in manufacture of Acetic Acid, Acetone, Wood Spirit, and all other chemical products. Capable of erecting all necessary plant for different processes on improved principle.—Address, "Acetone," *Chemical Trade Journal*, Manchester.

CHEMICAL DRYER WANTED in a Chemical Office. Particulars will be supplied on application to "Dryer," *Chemical Trade Journal*, Manchester.

Notices.

Communications for the *Chemical Trade Journal* should be sent by Post Office Orders made payable to—

BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, of the *Chemical Trade Journal*,—payable in advance,—including postage for the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Subscribers will oblige by making their remittances for subscriptions by Post Office Order, crossed and payable to "Davis Bros."

Contributors are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than **Tuesday**.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and other notices, and Specific Articles for Sale by Private Contract are accepted in the *Chemical Trade Journal* at the following rates:—

Words and under	2s. 0d. per insertion
Each additional 10 words	0s. 0d.

CURRENT TOPICS.

NOT WANTED.

A PRETTY little squabble, or rather fight, is going on over the election of the President of the Chemical Society, and though we scarcely dare hope that those who have had the temerity to challenge the choice of the Council will be very successful, it is encouraging to see that there are chemists who have the conviction of their opinions.

We have only heard rumours as to the grounds on which exception has been taken to the nomination of Professor Dewar, but to the thoughtful man of average conscientiousness it will be apparent that there are many others who might fill the post in a more fitting and worthy manner.

Professor Dewar may no doubt be a man of repute in the scientific world, and justly entitled to commendation, but there are subjects on which he has been engaged in a way that opens the door to criticism. It is evident that there is a goodly number of members who take strong objection to honouring with the presidentship of their Society a gentleman whose line of action in regard to high explosives and petroleum has to them been professionally distasteful—which is a mild word for strong feelings.

We understand that the opposition asked Professor Tilden to stand, but that he declined—not unwisely, we think—to oppose Professor Dewar. Subsequently Professor Ramsay was nominated, but we fear there is a doubt as to his full acquiescence having been obtained, so that a hitch may again occur.

At the same time, even if all the hard and well-meant work of the dissenters fails to achieve their end it will not have been wasted by any means. It is a healthy and promising sign that the present and rising generation of chemists are influenced by a desire to give honour to those who truly merit it, and are not to be blinded by the dazzling splendour of social success, or led away by the whiles of position and official eminence. The society did not hesitate to administer a caution to one of its lesser lights some time ago, and it did so on grounds that were thought justifiable by some and dubious by others. Nevertheless it was satisfactory to know that doubtful if not actually unprofessional actions were not to be tolerated. It is therefore all the more satisfactory to know that the greater lights are to be shown that they too are not above criticism, and that what applies to the budding flower applies equally to the full blown rose, in spite of its "perfume."

HAWKERS AS EXPERTS.

It will be remembered that the sittings of the petroleum committee were to be resumed, mainly because it was thought desirable to hear certain American evidence. Now that the sittings are being continued it appears that much evidence is being given by retail dealers and the lamp trade.

We think that the American faction will soon be very sorry that they kept the ball rolling, as the committee have had a few eye openers—that is, provided they are not afraid to raise their eyelids, lest they be blinded by the glory that radiates from the Light of the World and his satellites.

Out of seven witnesses five have spoken in unmistakable terms of the advantages of raising the flashpoint to 100° F. One retailer positively stated that he sold Russian oil in preference to American, the former being much liked and having a flashpoint of over 85° F as compared with the American at 73° to 76° F.

One of the gentlemen who think there is no need to legislate on the flashpoint is a licensed hawk. This is on a par with asking a horse dealer if he thinks the spavined, broken-winded hack he is trying to sell really is as sound as a bell, and then believing him when he says "Yes." It shows how desperate the case of the low-flash party is, when their experts have to co-operate with hawkers, and the members of the Committee must undoubtedly have felt flattered and honoured at the thought of being advised by so competent a judge. Oil hawkers, of course, are so well educated, and have such a wide knowledge of the subject, that it is not at all surprising that their evidence should be accepted before the testimony of mere men of letters and science, especially if the latter do not see eye to eye with the low-flash party.

One witness in particular seemed to worry the chairman because he could not be tricked into departing from his statement that practically any lamp would be safe with oil of 100° flashpoint. He even provoked the chairman to ask if he knew that "many serious and fatal accidents had occurred from the use of oils of about 100° flashpoint."

We should like to ask the chairman how many he knew of, when they happened, where, and under what circumstances? Also, does the chairman know that wherever oil of 100°/105° has supplanted the stuff flashing at 73°/76° accidents have decreased almost to the vanishing point? If he does not know this it is a pity, because he is not doing justice to his powers of observation. If he *does* know it, why did he put such an obviously misleading and crooked question to this witness?

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before the Master of the Rolls, Lord Justice Lopes, and Lord Justice Chitty.)

PEEBLES v. OSWALDTWISTLE DISTRICT COUNCIL.

THIS was an appeal from the judgment of Mr. Justice Charles at the trial of the action without a jury, reported in 13, *The Times* Law Reports, 116. The action was one for a *mandamus*, and it came before the learned judge for consideration on points of law. The plaintiffs were the executors of Peter Cadell Peebles, a paper manufacturer, who was the owner and occupier of a factory called the Whiteash Paper Mills, within the district for which the defendants were the local authority. The plaintiffs stated in their statement of claim that they desired to cause their drains to empty into the sewers of the defendants, and to carry into such sewers the liquids proceeding from their factory or manufacturing processes, but the sewers within the district were not such as were necessary for effectually draining the district for the purposes of the Public Health Act, 1875, and, in particular, were not such as were necessary for effectually draining the plaintiffs' premises, whereby they were unable to cause their drains to empty into the defendants' sewers, or to carry into them the liquids proceeding from their factory or manufacturing processes. The plaintiffs then alleged that they had demanded of the defendants that they should cause to be made such sewers as might be necessary

for effectually draining their district, and, in particular, for effectually draining the plaintiffs' premises, and further that the defendants, according to the provisions of the Rivers Pollution Act, 1875, facilities for enabling the plaintiffs to carry into the sewers the liquids proceeding from their factory or manufacturing processes. The defendants had declined to comply with these demands, and the plaintiffs claimed in the action a *mandamus* to compel the defendants first, to cause to be made such sewers as might be necessary for effectually draining their district for the purposes of the Public Health Act, 1875, and, secondly, to give facilities for enabling the plaintiffs to carry the liquids proceeding from their factories or manufacturing processes into the sewer under the defendants' control. Mr. Justice Charles held that the plaintiffs were entitled to a *mandamus* commanding the defendants to cause to be made such sewers as might be necessary for effectually draining their district under the Public Health Act, 1875, and, in particular, the plaintiffs' premises; and he held that the defendants were not entitled to a *mandamus* to grant them the first part of this judgment. The defendants appealed.

Mr. Joseph Walton, Q.C., and Mr. Danckwerts appeared for the plaintiffs; Mr. Bigham, Q.C., and Mr. C. A. Russell, Q.C., for the defendants.

The Court allowed the appeal.

The Master of the Rolls said that in this case the plaintiffs brought an action against the defendant local board asking for a *mandamus* to compel the local board to make sewers for the purpose of carrying away an overflow of dirty water which the plaintiffs had brought into existence within the district of the defendants. By the judgment of Mr. Justice Charles the plaintiffs had obtained such a *mandamus* which was an order on the defendants to carry out large and expensive works. The answer suggested to the action was—that the liability of the defendants to see the district clear from inundations was imposed on them by a statute, that no such obligation rested upon them by common law before the statute, and that in the same statute a new obligation was enforced, and in the same statute a remedy was provided for the non-fulfilment of the obligation, that was a *remedy*. In obedience to that rule this Court, in the case of *Robinson v. Mayor, &c., of Workington* (13 *The Times* Reports, 148), held that the Public Health Act imposed on the authority an obligation not known to the common law, and that section 299 enacted a remedy in case the obligation were not fulfilled, viz., an application to the Local Government Board—and therefore, that was the only remedy which an individual in the district could follow. It was true that there the action was for a *mandamus* whereas here the action was for a *mandamus*. But neither *damages* nor a *mandamus* was the remedy contained in section 299, and it was from the reason of that decision that an action for a *mandamus* could not be maintained, and that the only remedy was by an application to the Local Government Board. It was said that an action for a *mandamus* necessarily be maintainable, because the only question in dispute was a question of law—viz., whether the defendants were bound to carry away the effluents from the plaintiffs' premises. In his judgment the action was not brought merely to determine a point of law, but an order commanding certain work to be done. If a question arose for determination before the Local Government Board the Board would decide it. Of course they might decide it wrongly, but if they decided it within their jurisdiction the statute put upon them the duty of doing it, and he desired on this occasion not to lay down any rule as to the power of the Local Government Board. He could not interfere with the judgment of Mr. Justice Charles. He thought the action did not lie, and that the appeal must be allowed.

The Lords Justices delivered judgments to the same effect.

NICHOLS CHEMICAL CO. REORGANIZED.—The Nichols Chemical Co., operating the Albert pyrites mines and the chemical and works at Capelton, Canada, is being reorganized, a charter under the Dominion Statutes being applied for. The new company will be called the Nichols Chemical Company, of Canada, and the authorized capital is 25,000 dols. The directors of the reorganized company are: W. H. Nichols, W. H. Nichols, Jr., and J. H. Bagg, New York; Spafford, Capelton; S. L. Clough and W. B. Pritchard, of the ship of Ascot, Quebec; A. W. Elkins, Capelton.

SCOTCH SHALE MINERS.—At a meeting held in Alexander last week, Mr. John Wilson reported as to how matters stood with the shale miners of Linlithgow and Tarbrax. The former had gone to work under the reduction, while the latter had successfully resisted the reduction, having resumed work at the old rates of pay. The Tarbrax men had been informed that on and after 25th March a reduction of wages would take place. Mr. Wilson urged those who were to be organized, and be in a position to resist any attempt upon them

The Patent List.

It is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

Water from Carbon Dioxide. J. Newton. 6,017. March 8.
Drying Process. H. Humbert. 6,065. March 8.
Carbon Dioxide and Apparatus therefor. M. Crawford. 6,082.
Processors. W. Climie and A. Watson, jun. 6,132. March 9.
Purifying Nitrate of Ammonia. R. N. Lennox. 6,140.
Experiments in Electrolysis of Salts. J. Hargreaves. 6,188. March 9.
Tanning Liquors. P. G. Sanford. 6,217. March 9.
Ring White Lead. T. C. Sanderson. 6,324. March 10.
Experiments in Stills or Condensers. A. McVeigh Miller. 6,423. March 11.
Cement Kilns. W. C. Reid and F. Crossland. 6,459. March 11.
Water in Open Vessels. A. Dervaux. 6,511. March 12.
Composition. P. Cullen. 6,564. March 12.
Process. C. O. Lundholm and J. Sayers. 6,610. March 13.
Carbide Furnaces. T. Keene. 6,648. March 13.
Aldehyde Compounds. H. Oppermann and R. Goehde. 6,653.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

and Apparatus for Producing Gas from Liquid Combustible
als. G. Tresenreuter, 28 Ackerstrasse, Berlin, N. Eng. Pat. 26,516.
er 23, 1896.

ention relates to spray lamps. An egg-shaped air vessel is
ication with the oil reservoir, the air being heated by a pilot
ing at the bottom of a central tube passing through the air
he expanding air forces the oil to the burner through two
s, which also pass upwards through the heating tube. There
figures.

Method of and Apparatus for the Production of Calcium
e. F. H. Haviland, St. Peter's Chambers; A. Holloway, "Hagley,"
and-road; J. B. Collier, Delphi Chambers; and W. H. Murch, Upper
road, all of Bourne-mouth. Eng. Pat. 15,429. July 13, 1896.

action vessel forms the cathode, and the carbon anode passes
e cover, being balanced by means of a counter weight and
the gaseous products also pass off through the lid, while at
is a discharge pipe for the carbide. The chief feature of
the feeding arrangement. One side of the reaction vessel is
with a sloping channel, into which a hopper feeds the mix-
ture and carbon, which in turn is pushed along by a spiral

Both the hopper and channel are built in the flue, so that
becomes heated before reaching the reaction vessel, where
e current soon supplies the extra heat required. There are
res, one showing an alternative arrangement in which a
the supplants the conveyor. The fused carbide is discharged
insulator, and is then ready for use.

e for Cutting Green Bones. H. Proctor, Station-road, Otley, and
utcliffe, Kettleasing, near Leeds. Eng. Pat. 15,195. July 9, 1896

nes are fed into a receiver or hopper, fitted with a pressing
he aid of which the bones are forced down on to a horizontal
ying a series of cutters. The plate is revolved by bevel gear,
resser-head is raised or lowered at will by a handwheel and
here are six figures showing the general construction, and
etails of the cutters and the plate that carries them.

ents in the Process of Manufacture of Artificial Asphalt. A.
naa, Beuselstrasse 51, and G. Boiesley, Sieghmundshof 8, both of Berlin.
at. 3,597. February 17, 1896.

or the remains from resin, and petroleum distillation, are
ith chloride of lime and then with sulphur, or *vice versa*.
uct is then mixed with lime, slag, and sawdust, and heated
oiling point. It has been found by experiment by treating
d sulphur with chloride of lime a product superior to natural
obtained. By stirring into this mixture bitumen, slag dust,
marl, paving blocks can be moulded which are suitable for
e use.

AUSTRALIAN TANNING MATERIALS.

THE value of Australian wattle-bark for tanning purposes has long been recognised, and largely explains (according to the views of Sydneyites) the generally superior character of Australian leather; but the actual number and variety of tan substances to be found in New South Wales and other colonies, although not yet fully ascertained, is known to be considerably larger than usually supposed. Among those in the mother colony is the bark of *Supania semiglanca*, which strongly resembles black wattle bark, and contains nearly 15 per cent. of tannic acid. The native willow contains over 13 per cent. of tannic acid, and is much used by the aborigines for tanning wallaby and other skins. The extract is of a bright ruby colour. The *Acacia salicina* furnishes an extract of a light ruby colour, inclining to orange, containing from 13 to 14 per cent. of tannic acid, the bark often being about one inch in thickness. *Acacia prominens*, the bark of which resembles that of the "golden wattle," gives a pale orange-brown extract, containing over 14 per cent. of tannic acid; as does the "Bastard Gidgeah," or "Nilyah," which grows largely in the dry country, and furnishes an orange-brown extract. The "Water Myrtle," a moss-grown tree, the bark of which is much favoured by orchids, furnishes nearly 16 per cent. of tannic acid, as also does the "Lily Pilly." The "Forest Oak" gives over 13 per cent. of tannic acid, the extract being of a rich orange-brown.

There are numerous varieties of bark giving from 3 to 5 or 6 per cent. of tannic acid, but it is doubtful whether any of these are suitable for commercial purposes, although their industrial applicability is simply a question of time. One of the most valuable barks is that of *Acacia decurra*, which gives a rich ruby extract, with over 36 per cent. of tannic acid. It is much used in country tanyards, the best kinds being those from the Nerriga and Bega districts, these furnishing three strong liquors. A sample of "coach-wood" furnished over 20 per cent. of tannic acid, the extract being of a light ruby colour, and somewhat fragrant. Similar results have been obtained from the *Hakea saligna* and the *Acacia cinervata*, the latter having the advantage that when the hides are too hard they can be softened by removing part of the tannin. Among other tan-barks is that of the *Acacia tetragonophylla*, common in the dry country, which gives from 5 to 6 per cent. of tannic acid. The "Prickly Acacia," another dry country bark, furnishes over 10 per cent. of tannic acid, especially when young trees are stripped. The "Drooping She Oak," contains little tannic acid in the outer bark, but the inner bark furnishes from 12 to 13 per cent. Although so rich in tannin material, this tree, like most of the others is used principally for fuel.

The immense wealth of tanning material in New South Wales indicates its prospective value as a leather-producing country, but so far comparatively little use has been made of the advantages thus afforded. This is largely a result of the cheapness and abundance of the supply of wattle bark in proportion to the demand. Should, however, the New South Wales leather manufacturers seek to extend their operations, they will find the practically inexhaustible supply of tanning materials give them an enormous advantage over their brethren in other and less favoured countries, enabling them to make the leather manufacture a leading colonial industry.

WORKING PETROLEUM IN JAVA.—A petroleum syndicate for the working of the springs of Java has been formed at Amsterdam, with a capital of 10,000,000fl., 5,000,000fl. of which are four-and-a-half per cent. debentures and the remainder preference shares.

THE ALLOYS RESEARCH COMMITTEE.—Professor Roberts-Austen's fourth report to the Alloys Research Committee of the Institution of Mechanical Engineers emphasises the conviction which has steadily been gaining ground of late that when a small amount of one metal is added to a large mass of another, its particles, being separated by dilution, are practically in the gaseous state, and exert pressure in the same way. Thus, when a few pounds of a manganese-iron alloy are thrown into a converter containing ten tons of molten iron, the composition of the whole mass quickly becomes uniform. This result cannot be due to mechanical agitation, but to an exalted diffusive power at the high temperature employed. This diffusion takes place, though less rapidly, between solid masses. When a cylinder of lead is placed on a surface of gold it is permeated by the latter in a few days, even at temperatures of 100 to 200 degrees Fahr. It has of course long been known to metallurgists that iron bars packed in charcoal and raised to a bright red or white heat become converted into steel, and, to compare great things with small, every housewife has observed that electro-plated forks when used for toasting become discoloured. But the subject has not hitherto been investigated from a quantitative standpoint. The object of the inquiry is to form a basis for the classification of alloys on the lines already laid down by Mendeléeff for the elements. It is one worthy of the highest consideration, both from the scientific and the industrial point of view.

Official Memoranda.

(From the Board of Trade Journal.)

BARBADOES CUSTOMS TARIFF.

The following is an abstract of the new Barbadoes tariff:—

	s.	d.
Candles (other than Tallow) per 100 lbs.	8	4
" (Tallow)	4	2
Cement per barrel	1	3
Manures (Chemical) and Fertilizers per ton	4	2
" Raw Horses, &c., Dung	0	6
Petroleum per gallon	0	4
Soap per 100 lbs.	1	6
Tallow	2	0

Free List.

Bones and Horns	Oil Boring Plant
Dried Blood	Tar
Lime	Pitch
Limestone	Resin
Logwood	Sugar and Rum Plant

QUEENSLAND CUSTOMS TARIFF.

The following is an abstract of the list of exemptions, with the date on which the exemption begins:—

Alkaline earth	Sept. 30, 1896.	Cyanide of potash ...	Sept. 30, 1896.
Alumina		Glycerine	
Asbestos, unmanufactured		Iodine	
Castor oil seed		Nitrate of silver	March 31, 1897.
" in bulk		Pearl ash	
Chalk		Saltpetre	
Acetate of soda		Silicate of soda	
Acid, boracic		Sodium nitrate	Sept. 30, 1896.
" carbolic		" sulphate	
" citric		Caustic soda	
" oxalic		Sulphur	March 31, 1897.
" phosphoric		Sulphate of copp'r	
" pyrogallie			
" salicylic			
" sulphurous	March 31, 1897.	Infusorial earth	
" tannic		Sulphate of barytes	
" tartaric		" iron	Sept. 30, 1896.
Alum		" magnesia	
Ammonia		" potash	
Arsenic		Sulphide of sodium	
Borax			
Camphor		Superphosphate of lime	
Carbon bisulphide		Manure plant	Mar. 31, 1896.
Carbonate of potash		Oil expressing plant	
Caustic potash		Sheep dip	
Chloride of gold and tin		Resin	
Cream of tartar			

Reports of Companies.

THE UNITED ALKALI COMPANY, LIMITED. A PROSPEROUS YEAR.

The sixth annual general meeting of the shareholders of the United Alkali Company, Limited, was held on Friday, the 19th inst., in the Law Association Rooms, Liverpool, the president (Sir Charles Tennant) presiding over a very large attendance. Amongst those present were Colonel Gamble (vice-president), Mr. John Brock (chairman of directors), Lieutenant-Colonel J. B. Gaskell, Messrs. C. E. Barlow, E. Baxter, J. C. Gamble, William Gamble, Holbrook Gaskell, jun., D. M'Kechie, E. K. Muspratt, G. Pilkington, J. A. E. Rayner, R. Shaw, P. J. Worsley, and J. E. Davidson, with J. Tennant and J. R. Wyld (managing directors). The report stated that the certified balance-sheet and profit and loss account on the working of the twelve months ending 31st December showed a net profit of £288,070 5s. 3d. A dividend was recommended on preference shares at 7s. per share, and a dividend on ordinary shares at 4s. per share. This provided an amount to be placed on the reserve fund (making the total reserve £707,780. 18s. 8d., of which £600,000 formed the depreciation portion of the fund) of £40,955. 15s. 3d.

The President, in the course of his annual statement, said that the affairs of the company at present looked promising and satisfactory. On the last occasion on which he presided, their affairs were not in so satisfactory a state as he was glad to say the account presented to them

by their directors showed them to be now. They showed that paying all charges, there was sufficient to pay 2 per cent., and £40,000 on the reserve fund, and he thought that was a comfortable affair upon which they could congratulate themselves. (Hear.) He next referred to the importance of the United States customer, and remarked on the severe trial which had been upon in the first place, by the Venezuelan difficulty, which had seriously affected the Stock Exchange; and then again had a presidential election, in which political strife arose to a state, and which, no doubt, interfered a good deal with the usually devoted to the commercial and manufacturing interest country. America had not yet resumed its normal state of peace. Under all these circumstances, he must say he did not expect such a favourable statement to place before the shareholders. The home trade had been in a fairly satisfactory state, and this he believed, in large measure to the fact that they had cut down cost of production to a very low state. (Hear, hear.)

The Chairman in moving the adoption of the report and said that the trade history of the year 1896, so far as their was concerned, had been a very chequered one. The closing of 1895 and the early months of 1896 seemed to give promise of considerable improvement, and for some of the articles that promise was fairly maintained throughout the year; but articles, salts of soda, especially with their chief customer, the States, the case was very different. First came the warlike action of the American President, which gave a decided check to this. This was hardly out of the way when the contest for the election of a sound-money President, or one favouring the Silver party. When that was decided in favour of Mr. Cleveland, then immediately began the movement for an increase of duties. All this unsettled trade, and the promise of increased demand goods fell away. This change was felt keenly by the manufacturers of soda, and they began a severe competition with other, by which prices were run down to a figure unprecedented in fact, they were actually delivering goods at the work customers at a price equivalent to 25s. per ton of 58 per cent. free on board at Liverpool. Of course, while this war of prices was going on, they considered it best to stand aside to a large extent and to let the domestic makers take the loss, till wise prevailed. For some time past they had felt the import of soda indeed necessary, of having premises in London, where they had a warehouse, and, if need be, manufacture soda crystals, and they had been fortunate in meeting with exceptionally well situated riverside freehold premises, called "The Clyde Wharf," to which was access both by river and rail, with substantial and buildings ready to their hand. It was their desire to manufacture articles manufactured so that they might have a steadier average from their business, since it seldom happened if the articles were sufficiently numerous and varied that all were depressed at the same time. Following out that policy, they had added one or two new articles to their list during the past year. Turning to the accounts, their share of debenture stock remained at the same amount as before. The debenture interest of £60,416. 13s. 4d. paid on the 1st of January, appeared as usual as a debit. The debts owing by the company were £212,379. 17s. 10d., or £38,976. 11s. 5d. less than last year. The reserve fund stood at £66,825. 3s. 3d. On the other hand, account they had additions to property, plant, freeholds, &c., to the value of £17s. 6d., which, after deducting the amounts realised by the sale of obsolete plant and property, and the amount written off for depreciation, left that account at £7,145,112. 16s. 9d., against £7,145,112. 1s. 9d. last year. (Hear, hear.) The stocks of manufactured raw materials, stores, and other articles, which had been valued and well written down, stood at £889,431. 2s. 2d., or 7s. 6d. more than last year. This increase arose mainly from conditions existing in the American market. The debts owing by the company amounted, with the outstanding consignments, to £22,934. 14s. more than last year. Money on the bank and investment was the same as last year, namely, £1s. Cash at bankers, and in hand, and at the head and dist with bills receivable, amounted to £77,219. 4s. 10d., or 1s. 11d. less than last year. Looking at the profit and loss they would see that the gross profit had been £455,708 which, with £5,998. 5s. 7d. interest on investments and bank and £512. 7s. 6d. for transfer fees, made a grand total of £462,219. 11s. 7d. (Applause.) The net profit, after payment of debenture interest, amounted to £288,070 5s. 3d., as against £247,225 in 1895. As the 1895 figures included about £24,000. profit on consols, it would be seen that the ordinary trading profit exceeded that of 1895 by nearly £65,000, so that they were recommending the payment of a larger dividend on the ordinary shares and still have almost £41,000. left to carry to the reserve. Notwithstanding the unsatisfactory condition of the American of their trade during the year under review, they had been able

ope expressed at the close of his remarks last year—that they enabled to give an increased dividend on the ordinary shares out of the year's trading, and it was in the main due to two economical working and their policy of not confining their resources to one or two articles. As to the future, he would prefer to wait. All of them knew the unrest and unsettled condition at the present time, making the future very difficult to foretell. He, however, did their best for them, and would spare neither effort, nor exertion to obtain the best results they could during the year. He then moved "That the report and statement be received and adopted, and after carrying £40,955 15s. 5d. reserve fund, the following dividends be and are hereby declared:—Profits accrued during the twelve months ending December 31, 1896, such dividends to be payable on the 22nd inst.:—The £10 ordinary shares, a dividend of 7s. per share, less income tax, making an interim dividend paid in August last, a dividend of 7 per cent. on the £10 ordinary shares, a dividend of 4s. per share, less income tax."

K. Muspratt seconded the resolution, pointing out that in the great competition that existed they ought to work as hard as possible, and apply high scientific ability to the development of the industry. Their comparatively favourable results were due to the economies in working, due to the zeal and efficiency of the officials.

The chairman, in answer to a question of a shareholder, said that at the present moment in what might be perfectly truly called a boom, £310,000. Part of that was in bank deposit and part in first-class securities. The larger half was in first-class securities, and the scrip of these securities had all been produced to the shareholders and pronounced satisfactory.

The motion was carried unanimously. The motion of Mr. Melland, seconded by Mr. Bacon, Messrs. Able, William Gamble, J. A. E. Rayner, and Colonel Gaskell appointed directors; and on the motion of Mr. T. Cook, by Mr. J. Hedley, Messrs. Stead, Taylor, and Stead, T. W. L. Co., Finney and Son, and Monkhouse, Goddard and Co. appointed auditors.—Votes of thanks to the chairman and the concluded the business of the general meeting.

Subsequently, at an extraordinary general meeting of the shareholders, article 83 of the articles of association was cancelled, and in its place was substituted the following:—The qualification of every shareholder and future director shall be the holding of shares or stock of the value of the nominal value of £5,000, of which nominal value at least 1000 shall be in ordinary shares or stock.—The resolution was carried with only one dissentient.

ALIAN GOLD RECOVERY COMPANY (LIMITED).

An extraordinary general meeting was held last week at the Cannon Hotel, E.C. Mr. Charles McCulloch presided. In moving the report of the chairman remarked that the results obtained were not, perhaps, very brilliant, but this was through no fault of theirs. To organise work and to carry it out in all the colonies was not an easy matter, and it required a great deal of time and administration. During the past twelve months, however, the results in Australia had shown a very distinct improvement, and this was not yet set out in the accounts. Their progress in the past year had been extremely satisfactory. Not only the small plants being put up, but larger mines were now arranging to work their tailings. The royalties had been paid throughout the year by all their clients, and, with one exception, the works that had been started were still in operation. The Government had been approached by certain persons who wished to extinguish the company's patent rights in the colony, alleging that the royalties charged by them were excessive. The Minister of the colony communicated with by their manager, who showed that gold values of 10s., 12s., and 15s. per ton of tailings was obtained by any process, and that all they asked out of this profit was 9d. per ton. Since then there had been no more allusion to the validity of their patents or to their charging excessive royalties. In Wales seemed to possess a good deal of gold-bearing quartz, but generally of rather low grade. It was stated last year that they had floated a large property there named Cobar Gold which had been actively developed, and a large plant of 100 tons was now being erected. They had recently taken part in a scheme to acquire in South Australia certain rights somewhat analogous to those in connection with the Cobar, and this might prove of value to them. They had made a contract for the treatment of the tailings of the Northern Territories Gold Fields of Australia, who would supply the use of the process. As regarded West Australia, they had not been producing in sufficient quantities to make use of the process, but it was now being employed, and they had been making contracts with some of the mines. The accounts showed a considerable improvement compared with those submitted a

year ago. A sum much in excess of that of last year had been written off for depreciation. Their profits, apart from shares, amounted to about £8,000 more than those of the previous year. During the year debentures amounting to £3,000 had been written off. The motion was seconded and adopted.

BROOKE, SIMPSON, AND SPILLER (LTD).

The annual general meeting was held last week at Winchester-house. Mr. Arthur Brooke presided. In moving the adoption of the report, the chairman reminded them that for the first nine months of 1897 there was a loss of about £1,200, and although there was some improvement in the last three months of the year, yet they entered on 1896 with a loss of £1,234. In the past year, however, they had made a net profit of £1,014. They had felt justified by the improvement in their affairs in expanding the business, from which they anticipated satisfactory results. With reference to the output of manufactured products, a substantial improvement was shown, together with a considerable money increase. One of their largest continental competitors had approached them lately regarding the sale of a special product of theirs, the name of which he thought it would be better not to mention, because, although the agreement was signed, a little time must pass before they could go thoroughly in for the business. They had written off 5 per cent. for depreciation of plant and machinery. The whole of the call had now been practically received. Machinery of the most modern type had been laid down, and the new works were in a satisfactory condition. Mr. W. E. Johnson seconded the motion, which was adopted.

DIVIDEND.

THE LAGUNAS NITRATE COMPANY has declared in interim dividend for the current year at the rate of 4 per cent. per annum, or 4s. per share, free of British income-tax.

ELECTROLYTIC CARBONS.

AN interesting article on carbon anodes has been abstracted recently by the *Electrician*, which paper points out that Dr. Lessing says with truth that in many cases the choice of an anode is the governing factor in the success of a given manufacture, and that according to the price and life of the anode chosen many an undertaking may stand or fall. This is especially true in the manufacture of alkali and chlorine by electrolytic methods; and the host of patents which have been granted for devices designed to replace those hitherto in use bears witness to this fact. According to Dr. Lessing, platinum is a substance almost ideal as an anode in this instance, because of its small volume and chemical indifference; and he goes on to lament that its high price causes it to be unavailable for manufacturing purposes. Dr. Lessing next reviews the patents that have been taken out with a view to producing better anodes, many of which have been abstracted in the *Journal*. Dr. Lessing shares the general preference for retort carbon or "scurf" as raw material, but as he well remarks, the smallest porosity, the finest hair-cracks, such as are scarcely discernible in the finished anode before use, are sufficient to allow the electrolyte to find its way into the interior of the plate. The evolution of gas or the local heating thus caused may induce stresses large enough to break up the carbon, both destroying it and contaminating the contents of the cell.

The best means hitherto employed in preparing carbons reasonably refractory consists in exposing the plates to high pressure and temperature. The plates prepared in this way cannot, however, be regarded as homogeneous, but must be considered simply as an agglomerate of small particles of carbon held together by a cementing material. Dr. Lessing claims to have overcome these drawbacks by producing a plate which he states is thoroughly sintered together to form a homogeneous mass of pure carbon, mechanically refractory and having good electrical conductivity. The product is said to be of steel-like appearance, to possess a metallic ring, and to be so hard that it will scratch glass and cannot be ground on an emery wheel. A material of this character may be expected to prove suitable for use as an anode, and experiments hitherto made warrant this expectation.

Commenting on this announcement, we may say that we have long held and have publicly advocated that the attention of manufacturers should be directed to the preparation of a carbon for electrolytic use far more nearly pure, homogeneous, and refractory than are those which serve well enough for arc lighting. We welcome the advent of a material fulfilling any or all of these requirements. At present Dr. Lessing has contented himself with somewhat general statements. We think it would be well for him to supplement these with some figures giving an insight into the quality of the carbon which he is able to make and a description of his method of manufacture. Its price is also a matter of considerable moment. Pending the arrival of these details, further comment may be wisely withheld.

QUEBRACHO WOOD EXTRACT.

SINCE the introduction of Quebracho Wood Extract in or about 1881 for tanning purposes, the manufacture of this extract has been so much improved as to enable a quality to be put before tanners which to-day, without doubt, must be recognised as the most advantageous tanning material in the leather industry.

The following description of its properties and uses is given by the makers, which can be obtained free in pamphlet form, from the agents Messrs. Fuerst Bros., 17, Philpot Lane, E. C. From the first existence of our works we have endeavoured specially to improve the manufacture of Quebracho Wood Extract, and after many years of practical and scientific tests we have succeeded in producing an irreproachable Quebracho Wood Extract. The large quantities which we turn out enables us to supply these extracts at prices so low as to make it possible (even to those tanners who have their own extraction plant) to buy from us with advantage. Even though they may work the wood themselves, users do not always succeed in extracting the tanning material to the fullest extent.

We may say that especially by introducing the Refined Quebracho Wood Extracts (that is, our Clarified and Decolourised qualities) great progress has been made, and the tanner is thereby enabled at comparatively low cost not only to avoid the slightly red colour, which is originally produced by the Quebracho Wood, but their use also enables him to tan in a shorter time than it would be possible with the best of other tanning extracts, because those substances which bar the way to the tanning material entering the interior of the hides properly have already been removed.

Quebracho Extract may be used for nearly all kinds of leather, specially for: soles, belting, harness, crops for butts, shoulders for horse-collars, carriages and all kinds of leather for purses and fancy goods. In many cases it is used exclusively for horse-hides and kips. In others it is used in connection with a different tanning material and extracts.

The advantages when using Quebracho Extract in comparison with other tanning extracts and tanning stuffs are principally the following:—

1. Through the high percentage of tanning substances the price of the material which has to be tanned will be cheaper than when any other known tanning substances are used, and we maintain with every right that the Quebracho Extract made by us in its present form is absolutely the cheapest, most advantageous, and easiest tanning material of the day.

- The Dry Extract contains from 61 to 66 % and the Paste from 41 to 44 % of tanning substances, and at even prices no other tanning extract can approximately give such high percentage of tanning material.

- A very important advantage for the tanner who uses Quebracho Extract is the heavy increase in weight of leather and the consequent advantage which he gains over the tanner who does not use it. In many cases the increase in weight is so great that the latter is absolutely unable to compete.

- A very important factor also is that most hides, when treated with Quebracho, will give a fully pliable leather, not obtainable by other extracts, and especially is this the case with flat, sloping hides. This is a point of very great importance.

- The fourth advantage in the use of Quebracho Extract is the shorter time of manufacture, or tanning process, because with no other tanning material will the manufacturer of leather be able to tan so thoroughly and well in such a short time, and produce such beautiful light and full leather of comparatively heavy weight. To do this of course the extract must be used in an intelligent manner, such as experience may dictate.

The fact also that Quebracho Extract may be used up entirely, with the exception of a minute portion of insoluble matter, has brought this material greatly into favour, as in most cases where tanners themselves extract, an imperfect process of extraction is possible, and all those who know what large quantities of tanning material are burnt or used up (as being of practically no value), under the name of spent tan, will comprehend the advantages and possibilities of gain by being able to determine at any moment the percentage of tanning material in the liquors with great precision, and to use up the tanning material easily and without trouble, to the very last.

We believe that every thinking and progressive tanner will agree with us when we say that, in the present days of competition, over-production, and low prices of the finished leather, it is necessary for him to make use of all advantageous methods of manufacture of the present time, and it is for that reason that we speak so pointedly.

Quebracho tanning material enters easily into the pores of the hide, it raises the tissue, and expert tanners get a full end pliable leather with nice grain. For many sorts of leather Quebracho Extract is used in conjunction with oak and fir tan extract, and by these combinations manufactured articles are obtained which are equal to any leather tanned with pure oak.

Many very large tanners are now using Quebracho Extract exclusively. They find it excellent extract, giving weight, quality of colour, and its results are with difficulty distinguished from oak leather.

In conclusion, we append general instructions for the use of Quebracho Extract (for which we are indebted to one of our tanners), and although we probably do not show therein anything to others, seeing that each tanner works in his own way, we nevertheless thereby to give a few hints which may be use profitable.

PURE EXTRACT (LIQUOR) TANNING.

Dissolving of Quebracho Wood Extract.—For dissolving this it is recommended to use a wooden vat of about 100 cubic feet which may be heated by steam. This vat is filled to about 1/2 with water or spent liquor, and to this must be added 3 cwt. (1) of Quebracho Paste; it is then boiled for about ten minutes which time it must be stirred continually.

Another plan is to use a copper extractor, which, with a atmospheres steam pressure, will entirely dissolve the extract.

Clearing and Cooling.—After it has been ascertained that the extract is entirely and evenly dissolved, the solution is passed or tan, or through a cooler, in order to clear the solution and to clear colouring which may still be contained therein.

Density of Tanning Liquor.—This may be 5 barkometres (about 2 to 2 1/2° Beaumé). When tanning in tubs, this density increased gradually to about four times.

The Mixing of the Extract.—The mixing of the dissolve with the tanning liquors is done in such a way that a quantity former is added to the tanning liquor, it being necessary to stop the operation until the above density is obtained. When tanning in tubs, it is recommended to boil the whole liquor afresh, and to use fresh liquors only, because through boiling a cleansing forms which at the same time destroys the fermentation germ.

Temperature of the Tanning Liquor.—The temperature of tanning liquor after having been mixed with the dissolved Quebracho Wood Extract must not exceed 26° C.

Shutting out light and air.—It is recommended to cover all vessels in order to avoid the air and light getting in, because precipitates oxidation of liquors and the light influences unfavourably the colour of the leather.

Cost of Tanning.—Quebracho Wood Extract must be used in such a way that with 1 1/2 cwt. Paste Extract, or 1 cwt. Dry Extract, finished leather is produced. The hides must be put into the tanning in such a way that the youngest hides are put in the oldest liquor, those hides which have been longest in the tanning should be with freshly boiled extract.

Fermentation.—After having ascertained that the tanning is proceeding which must be the case (when the extract liquors are used proportionately), for horse-hides in about 3, for upper-leather, carriage and belting in 6 to 8, and for sole leather in about 10 weeks; the hides are taken out from the strong liquors and placed in clear extract colour, which is in process of fermentation, so as to limarily arrange the hides for drying. Leather which is already dry directly after it has been taken from the strong liquor will appear brown, because the extract, during the process of drying, is to the surface of the hide.

Drying of Leather.—This must be done very carefully, and the greatest attention of the expert. The whole appearance of the leather will depend upon the drying process, and it should, therefore, be said before, receive closest attention.

PIT TANNING, AND APPLICATION OF QUEBRACHO WOOD EXTRACT.

Dissolving, Clearing, and Cooling.—This process with Quebracho Wood Extract is done in the same manner as explained above for pure extract tanning.

Density of the Tanning Liquor.—The density of the tanning liquor in the colouring may be 5 barkometres (equal to 2—2 1/4° Beaumé) added in this consistency to the existing colour liquors will probably as a rule acid liquors.

Temperature of the Tanning Liquors and Exclusion of Air.—We said about this for liquor tanning is also to be understood for pit tanning.

Cost of Tanning.—In the colouring operation it is recommended for every 1 cwt. of nearly finished leather, say 33—44 lbs. Quebracho Extract, or 24 to 30 lbs. Dry Quebracho Extract, the hides will show an alteration which extends right into the part of same. The exterior layers of skins are tanned to about the inner third of the cutting which clearly shows the structure of the leather, will not look glassy any longer. In this condition the leather must be put into the pits.

To the flushing liquor add a solution about 11 lbs. per batch of Quebracho Extract, or 8 lbs. Dry Quebracho Extract for every finished leather; for the last batch it is recommended not to use

because from this batch the leathers are dried, and the extract appears at the extremities of the skins and which did not ferment, damage the colour of the leather.

ular attention is drawn to this matter, which is of very great importance.

ing of the Leather.—What we said on the subject of vat-tanning understood and recommended in the same way for the pits.

Correspondence.

THE UNITED ALKALI COMPANY'S DIRECTORS' QUALIFICATION.

(To the Editor of the Chemical Trade Journal.)

Having, at to-day's extraordinary general meeting of the Alkali Co. Limited, opposed the proposition to raise the qualification from £1,000. to £5,000. nominal value in shares, I regret that the reasons for doing so were not heard. Your paper enable me to give these to your readers. It was perhaps to attempt to dwell on the case of the Simpson's Lever Chain, who have just found it desirable to reduce their directors' qualification, from 5,000 to 500 shares. As, however, I am in no way connected with the Simpson Company, the facts were simply mentioned by example.

Another case is that of the South Metropolitan Gas Company. Mr. Livesey, the chairman, at a recent meeting said on the subject of altering the directors' qualification from £5,000. to £2,500. : "I have gone over the list of shareholders they found that there were very few held such a large amount of stock as that, probably not more than all, out of 6,000 or 7,000 : and on further sifting this number and that only two or three were eligible to serve on account of age, or living at a distance. They had experienced the greatest difficulty in filling the vacancies that had recently occurred on the Board. In none of the other gas companies was the qualification so

always within the power of the shareholders to elect only those who were for the directorate who hold the largest qualification, it came in view of the above cases, and others that might be met at it would be better for us to remain free to act in this respect under changing conditions of the business might dictate. Of course I persist in opposing a motion that meets with so much favour as one isolated, and sincerely hope that when finally carried it will be in all the benefit to the company that is doubtless anticipated.

F. J. R. CARULLA.

March 19th, 1897.

ANSWERS TO CORRESPONDENTS.

is a mistake on your part. There is no such company. The company is now in liquidation.

2.—The equivalent is "assiette à soupe." It is customary to place a plate containing water under the generating flask to catch the acid and when a breakage occurs. Any other suitable vessel would do as well. 3.—The patentee's own expression. He evidently means the potash that is bination in the sugar and starch. 4.—There is none mined in England. Saledonia certainly contributes a lot. The two chief companies are Le and Societe d'Exploitation des Mines de Nickel. The principal mining is in Thio, Canala, Konana, Dumbea, Bourail, and Koniambo. 5.—We know of none, so are afraid we cannot help you.

HATE SHIPMENTS.—The exports of Florida phosphate rock from Annah, Ga., during the month of February amounted to 5,284 95 tons going to Genoa, 1,674 to Stettin, and 2,542 tons to

OF FREEHOLD FARMS IN CHESHIRE.—At the Royal Hotel, recently, Mr. Frank Lloyd offered for sale two freehold farms at Barthomley and Sandbach. The first lot was the Oakhanger farm, consisting of large house, corn mill, farm buildings, and 190 and, situated on the highway from Alsager to Crewe. Timber over £1,000 and machinery valued at over £400 were included in the farm. Mr. Lloyd stated that the farm was let at £350 a year, and five years ago it was sold for £10,000. Since then considerable money had been spent upon it in improvements. Bidding for the farm was £7,500, and eventually the estate was knocked down to Messrs. Leakey, of Leek, for £9,100. Finger-post farm, situated at Sandbach, near Hassall Green station, consisting of a new house, farm buildings, and twenty-nine acres of land, was started at £1,500. The farm was let at £90 a year rental, and was stated to have cost £3,100, and improvements. Mr. Holland, of Hinde Heath, Sandbach, was the purchaser for £2,210. Mr. A. G. Hill was the vendors'

Trade Notes.

CALCIUM CARBIDE.—An Augsburg company is about to erect large works in Upper Bavaria for the manufacture of calcium carbide. The plant is to have a capacity of 10 tons per day.

Obituary.—We regret having to record the death of Mr. F. W. Crossley, of Openshaw, Manchester. Apprenticed to the Armstrong Engineering firm at Newcastle-on-Tyne he subsequently acquired the Otto patents, and settling in business at Openshaw soon gained a sound reputation and business as a maker of gas engines. He was 57 years of age.

THE SALT TRADE.—Recent returns show that the salt trade, which was until recently confined to Cheshire, is largely being transferred to Middlesboro, Gloucester, and Fleetwood, with the result that Winsford and Moulton are suffering intensely. February exports were 1,700 tons less than the corresponding month, and while Gloucester shipments have increased 5,000 tons, Liverpool, Runcorn, and the Ship Canal exported 4,000 tons less. The coastwise trade has improved, but Cheshire has fallen off nearly 3,000 tons. Since the year opened 9,000 tons less than in the corresponding period have been shipped from all parts. Cheshire has lost 11,000 tons.

THE SALT UNION CASE.—At the suit of the Salt Union and the Droitwich Salt Company Mr. Justice Kekewich, after three days' trial, has granted an injunction restraining the Droitwich salt firm of Harvey and Co., who were said to be the only firm outside the salt "ring," from laying pipes, or using the already laid pipes, under the streets of that town, for conveying brine from the pits to defendants' salt works. They pleaded leave of the corporation, as the urban authority to lay the pipes, and also a charter of King John, under which Droitwich was made a corporation, but whose grant the plaintiffs submitted was not so wide as defendants claimed. His lordship held that neither the charter nor the Public Health Act availed as against the freeholders' presumptive rights in the land abutting on their properties to a centre line under the streets, but suspended the mandatory part of the order to enable the parties to confer as to further procedure.

NEW AMERICAN TARIFF.—Under the new bill it is proposed to put the following on the free list:—Acids—Arsenic or arsenious, fluoric, muriatic, nitric, phosphoric, picric or nitro-picric, prussic, and silicic when chemically pure or in condition for use for medicinal, chemical, or manufacturing purposes without further preparation or treatment.

Asbestos in its natural state as taken from the mines, not assorted, purified, or advanced in any manner.

Baryta, carbonate of, or witherite, bauxite, crude, not not refined, or otherwise advanced in condition from its natural state.

Sulphuric acid, which at the temperature of 60 deg. Fahrenheit does not exceed the specific gravity of 1.38 for use in manufacturing superphosphate of lime or artificial manures of any kind or for any agricultural purposes, provided that upon all sulphuric acid imported from any country, whether independent or a dependency, which imposes a duty upon sulphuric acid exported from the United States there shall be levied and collected a duty of 1/4 c. per lb.

BENZOLINE EXPLOSION AT LEEDS.—An alarming explosion took place this week on the premises of Mr. Walter Huntrels, chemist, at the corner of Kirkstall-road and Perseverance-street, Leeds. Behind his premises Mr. Huntrels has a licensed store for oils, a place about half a dozen yards square. A cask of benzoline had been carried into the store, and a man was in the act of tapping it when the contents by some means or other took fire. Prior to this the Leeds fire brigade had been summoned to the spot, had extinguished another fire, and were on the point of leaving when the greater outbreak took place. The flaming benzoline rushed down a narrow passage leading from the store to the street, where a considerable number of children on their way from school were assembled. Before they could get away most of them were caught in the flames. The firemen on duty rushed in to rescue them, and succeeded in getting them away from the flaming benzoline, but not before thirteen of them had been seriously burnt about the hands and face, and their clothes partly burnt off. The injured children were conveyed to their homes, which were close by. The greatest sufferers were the firemen, who were severely burnt while rescuing the children. No fewer than six of them were taken to the infirmary, namely William Bland, Frank Hill, Alfred Waterhouse, Harry Croisdale, Joseph Elliss, and John Horner, together with a policeman named Makin. They were all detained as in-patients, and some of their injuries are of a serious character. There were 42 gallons of benzoline in the store, as well as 30 gallons of paraffin and other explosive materials. The place was wrecked, the roof being blown off, and other damage caused. The report of the explosion was heard for a considerable distance, and attracted a large crowd to the spot.

GERMAN CHEMICAL INDUSTRY.—The Society for the Protection of the interests of Chemical Industry in Germany will hold its annual congress and general meeting at Baden-Baden on September 24 and 25.

NOW AND THEN.—The first oil well opened in the United States was drilled in the year 1859. Since then there have been drilled 93,409 wells, with a total production of 596,633,000 barrels.

CANADIAN MINERALS.—An advance bulletin of the report of the Dominion Geological Survey has been issued from the department at Ottawa dealing with the mineral production of Canada in 1896. Lead shows a decrease in value to the extent of \$28,852, although this is occasioned altogether by a reduction of 8% in price, there having been an increase of production of more than a million pounds. The principal values of minerals for the year were as follow:—Lead, \$721,384; petroleum, \$1,155,640; asbestos, \$429,850; gypsum, \$174,400; mica, \$60,000.

CHANGE OF ADDRESS.—We are informed by Messrs. Williams and Robinson Ltd., of Picton House, Thames Ditton, Surrey, that the offices of the company were removed from this address to Rugby, Warwickshire, on the 18th March. All letters and other communications posted for delivery on or after the 19th March should be addressed to Williams and Robinson Ltd., Rugby. The works at Thames Ditton will in future be used only for the manufacture of certain standard parts of the engines. Engines will be erected and tested at Rugby, and no correspondence will be conducted from Thames Ditton. Every effort will be made to prevent interruption of business in consequence of the move, but the company ask the indulgence of customers and correspondents in regard to any unavoidable delay which may arise, either in replying to letters or in giving delivery of engines on order.

ANALYSIS OF FERTILISERS AND FEEDING STUFFS.—Reports received by the Board of Agriculture show that samples were analysed under the Fertilisers and Feeding Stuffs Act, 1893, in fifty-four counties or county boroughs during the year 1896, the total number of samples analysed having been 797, of which 552 were fertilisers and 245 feeding stuffs. As District Agricultural Analysts were appointed for all counties (with one exception) in 1894, two complete years have now elapsed since the Act has been in full operation throughout the country. A comparison between 1896 and 1895 is therefore possible. It appears that during 1896 there was an increase of 182—141 fertilisers and 41 feeding stuffs—in the total number of samples analysed. The increase has been greatest in England. In 1895 more samples were analysed in Scotland than in the former country, but during the past year more than half the analyses were made in England and Wales.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

GOLD OUTPUT IN THE RAND.

THE output from the Rand district during the past month, as cabled by the Witwatersrand Chamber of Mines, amounts to 169,054 oz. This total, however, is exclusive of the returns of several companies which, under the title of the "Association of Mines of the South African Republic," give their joint output as 41,946 oz. The month's production is, therefore, 211,000 oz., and shows an increase of 1,168 oz., as compared with the previous total, and an increase of 43,982 oz., as compared with the corresponding month of 1896. The following table gives the monthly returns since the beginning of 1894:—

	1894.	1895.	1896.	1897.
	oz.	oz.	oz.	oz.
January	149,814	177,463	148,178	209,832
February ...	151,870	169,295	167,018	211,000
March	165,372	184,945	173,952	—
April	168,745	186,323	176,707	—
May	169,773	194,580	195,008	—
June	168,162	200,941	193,640	—
July	167,953	199,453	203,873	—
August	174,977	203,573	213,418	—
September ..	176,707	194,764	202,561	—
October	173,378	192,652	199,889	—
November ..	175,304	195,218	201,113	—
December ..	182,104	178,428	206,517	—

Total .. 2,024,159 2,277,635 2,281,874 420,832

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are again weaker, though it is difficult to understand why this should be so, as stocks are low, and the prospects of demand satisfactory. Prices are practically nominal, there being very little doing at closing values, which are; 90's 2s. 7d. and 50/90's 2s. 4½d. Carbolic acids continue steady, crystals being firm through scarcity. Prices are—Crude 60% 2s. 6d.; 40% crystals 8d., and liquid 1s. Naphthas are quiet, with solvent at 1s. 8d. and crude 1s. 1d. Pitch is in better demand, and promises well at 22s. 6d. to 23s., f.o.b. East Coast. Anthracene 30% A 8½d., and B 7½d.

Sulphate of Ammonia has gone back once more and seems in a state of quiescence. Buyers have been more scarce and makers more willing to sell. In the forward position Beckton is offering for April-May at £7. 15s. For prompt closing values are: Beckton £7. 16s. 3d., London outside makes £8., Liverpool £8. 1s. 3d., Hull and Leith £8. Nitrate of Soda quiet.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali market there is but little movement in values. The prices as a whole are firm, but the export trade is far from encouraging, either in the present or forward outlook. Ammonia alkali is now for home trade maintained at the advanced quotation of £3. 17s. 6d. per ton, bags, f.o.r. makers' works, export prices ranging from £1. 17s. 6d. to £2. 5s., f.o.b. Leblanc soda ash in limited request only at prices from 1d. to 1¼d. per degree f.o.b. in casks. Caustic soda is meantime steady at prices which have held for some time past, owing to the cessation of active competition by the larger producers. Increased output, however, is to be looked for shortly from the new electrolytic processes. Present prices may be taken as last quoted, viz:—F.o.b. Liverpool, 77% £9. 5s., 74% £8. 2s. 6d., 70% £7. 2s. 6d., 60% £6. 2s. 6d., 10-ton lots. For sulphate of copper, with slackening of shipments, price has an easier tendency, but nominal quotation is £18. 15s., f.o.b. Bleaching powder is in fairly active demand for export, and spot price is £6. 10s. per ton, f.o.r. makers' works, with lower quotations for forward contracts, £6. 10s. to £6. 12s. 6d. in hardwood casks, f.o.b. Liverpool, Tyne, &c. In chlorates of potash and soda there is no change, but business quiet and prices 3¾d. and 4¾d. per lb. respectively. Sulphur firm at £4. 15s. per ton f.o.r. Vitriol and muriatic acid are in good request. For saltcake there is a rather better export enquiry, and price is 19s. to 20s. in bulk at makers' works. White powdered arsenic, £24. to £24. 5s. f.o.r. China clay in best white qualities, is selling freely, but general demand very quiet for the medium to low qualities, ranging from 22s. 6d., down to 15s. per ton in bulk at Runcorn. Green copperas is firm in price, supplies being readily taken up at 25s. to 26s. per ton, delivered in the principal districts of consumption. Potash, caustic, is slightly easier in price of lower qualities. Carbonate firm for prompt delivery at £17. 15s. for 90/92% best grades. Yellow prussiate 5d. to 5½d. Bichromates of potash and soda remain steady at 4½d. to 3¾d. Oxalic acid 3½d. to 3¾d. Tartaric acid quiet at 11½d.

REPORT ON MANURE MATERIAL.

The market has remained very quiet for the time of the year, and there has been no important change in prices. The position of mineral phosphates is altogether unchanged and there has been nothing of importance to comment upon. River Plate bones for shipment have been neglected so far as United Kingdom is concerned. The quay having been cleared at Liverpool of crushed Kurrachee bones, £3. 15s. is now asked ex store. There are still of bone meal, ordinary quality, at £3. 12s. 6d., but £3. 15s. per ton is required for fine quality. Nitrate of soda is in rather better demand, but the quotations remain at 8s. 1½d. per cwt. for good, up to 8s. 3d. for fine quality. The market for dust and arrived cargoes is rather firmer, and 8s. to 8s. 1d. per cwt., according to size and quality, may be quoted as nearest value.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.
OILS.—Palm oil is moving freely, there being a good business doing in Lagos at £20. 10s., and soft oils at £19. 2s. 6d. Olive continues firm in price, the market being steady, and the demand satisfactory. Linseed oil is weaker, and is very dull even at the reduction, Liverpool makes in export casks now being quoted 15s. to 17s. per cwt. Cotton seed is also down again at 15s. 3d. to 16s. for Liverpool refined, and slow at that. Castor oil is moving rather better. The market is still

er, with sellers of good seconds Calcutta at $2\frac{1}{2}$ d. First ench $2\frac{3}{4}$ to $2\frac{1}{2}$ d. per lb. Tallow is steady and unchanged. Resin, though firmly held, is not so well inquired for at encies. Spirits of turpentine keep steady at 21s. 3d. per cwt., holders being firm thereat. Petroleum is very quiet with $5\frac{3}{4}$ d. to 1d. and Russian refined $5\frac{1}{4}$ d. to $5\frac{3}{4}$ d. per gallon.

THE METAL MARKETS.

N, WEDNESDAY.—Pig iron firm: Scotch warrants closed at Middlesbrough 40s. $7\frac{1}{2}$ d. cash, and hematite 48s. $6\frac{1}{2}$ d. per cwt. Chili bars, G. O. B.'s and G. M. B.'s, closed at $\pounds 49$. 15s. cash, and $\pounds 40$. 18s. 9d. to $\pounds 50$. 3s. 9d. per cwt. Tin rather easier: Straits closed at $\pounds 59$. 16s. 3d. to $\pounds 60$. 8s. 9d. to $\pounds 60$. 18s. 9d. three months; $\pounds 61$. 7s. 6d.; English ingots, $\pounds 64$. Lead; quiet, 1. 11s. 3d.; English, $\pounds 11$. 5s. Silesian spelter, ordinary, to $\pounds 17$ 5s. Nickel, 1s. $2\frac{1}{2}$ d. Antimony, $\pounds 31$. Quicksilver, $\pounds 7$. 5s.; second hands, $\pounds 7$. 4s. Copper shares quiet: $\pounds 2\frac{1}{2}$; Copiapo, $1\frac{1}{8}$ to $2\frac{1}{8}$; Libiola, $2\frac{1}{8}$ to $2\frac{3}{8}$; Mason $2\frac{1}{2}$ to $2\frac{3}{4}$; Rio Tinto, $26\frac{3}{4}$ to $26\frac{1}{4}$; Tharsis, $6\frac{1}{2}$ to $6\frac{3}{4}$. W, WEDNESDAY.—Market steady, with a small business: at 45s. $5\frac{1}{2}$ d. and 45s. $6\frac{1}{2}$ d. cash; also at 45s. 9d. one sing with buyers at 45s. 6d. cash; sellers, 45s. $6\frac{1}{2}$ d. losses with buyers at 40s. $7\frac{1}{2}$ d. cash; sellers ask 40s. $8\frac{1}{2}$ d. hematite done at 48s. 7d. cash; also at 48s. 9d. one sing with buyers at 48s. $6\frac{1}{2}$ d. cash; sellers ask 48s. 7d. high hematite done at 49s. 6d. cash; closing with buyers at 49s. 6d.; sellers ask 49s. $6\frac{1}{2}$ d.

VEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

It is stated that the English makers of alkalis—soda ash and soda—have agreed upon a substantial advance in prices, but so quotations have not been appreciably affected, these things being pretty much as before. Chlorate of potash has gone unimpaired request, and the price is up. Borax still inclines to be dear, and the article is being offered for less money. Copper, also, is cheaper. Sulphate of ammonia is away up, the price having declined to $\pounds 8$. 2s. 6d., f.o.b., Leith, lower, in the absence of any movement. It may take up a good deal of the month draws on. There is nothing on report forward dealing, and the weather has long been set against it. Demand for immediate agricultural application of soda and paraffins are unchanged in nominal quotations, but comes weaker, except as to lubricants.

Current are:—Soda crystals, $\pounds 2$. 2s. 6d., nett, Tyne; $\pounds 1/62^{\circ}$, $\pounds 4$. 2s. 6d., to $\pounds 4$. 7s. 6d. nett, Tyne; white alkali, $\pounds 17$. 6d. to $\pounds 5$. 7s. 6d. nett, Tyne; alum in lump, $\pounds 5$. to $\pounds 5$. 5s. net; caustic soda, white, $\pounds 7\frac{1}{2}$ to $\pounds 8$. 2s. 6d., $70/72^{\circ}$ $\pounds 7$. 2s. 6d., 2s. 6d., and cream $65/62^{\circ}$ $\pounds 6$, all nett, Liverpool; bleach, $\pounds 6$. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, and boracic acid, $\pounds 28$. nett, Glasgow; bicarbonate of soda, $\pounds 6$. 7s. 6d., and 1-cwt. casks $\pounds 6$. 15s. nett, Liverpool; of potash, $4\frac{1}{2}$ d. nett, for Scotch and English deliveries (for 1. nett, f.o.b. Glasgow); bichromate of soda, $3\frac{1}{4}$ d. nett, for English deliveries (for export, $3\frac{1}{2}$ d. nett, f.o.b. Glasgow); of potash, 3d. less 5%, any port; nitrate of soda, sulphate of ammonia, $\pounds 8$. 2s. 6d. prompt, f.o.b. Leith; c, first and second white, $\pounds 35$. and $\pounds 33$. nett. sulphate of copper, $\pounds 18$. 10s., less 5%, Liverpool; paraffin oil, $1\frac{1}{4}$ d. to $1\frac{1}{2}$ d., and soft, $1\frac{1}{2}$ d. per lb.; paraffin semi-refined, $1\frac{3}{4}$ d. to 2d. per lb.; paraffin spirit $6\frac{1}{2}$ d. per gallon; paraffin oil (burning) No. 1, $6\frac{1}{4}$ d., and No. 2, at Glasgow and other big centres, for Scotch buyers less $\frac{1}{2}$ d. to $\frac{3}{4}$ d. lower; ditto (lubricating) 86° $\pounds 5$. to $\pounds 5$. 15s. to $\pounds 6$. 5s., and $890/895^{\circ}$ $\pounds 6$. 10s. to $\pounds 7$. 10s. Ports of sugar at Greenock were 600 bags beet refined and beet unrefined.

PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

It may be important to announce as of interest, on the point of communication with our Colonies, that the Holme Line of steamers have decided to establish a regular communication between Canada (Montreal), this being an innovation much required, and alike to consumer and manufacturer. The market price of oil appears to have fallen into a state of collapse, and it is where it will stop. Cotton oil, however, continues to be imported of good volume, and unless a more

ready demand be apparent, there is little prospect of much improvement. Linseed, 119,549 qrs., against 121,805 qrs. a year ago; rapeseed, 36,588 qrs., against 15,232 qrs.; cottonseed, 55,277 tons, against 51,399 tons; oilcake, 2,348 tons, against 3,929 tons; olive oil, 958 tons, against 1,817 tons. Linseed oil is lower with sellers at 13s., also quotation for month; forward, April, 13s. 6d., May-August, 14s. $1\frac{1}{2}$ d. accepted. Boiled and refined, $\pounds 1$ to $\pounds 1$. 10s. per ton extra. Refined cotton oil steady, spot naked, 13s.; forward, April, 13s. $1\frac{1}{2}$ d., May-August, 13s. 9d. per cwt. Crude ditto, spot, 12s.; March-April, 12s. $1\frac{1}{2}$ d. Filtered refined $\pounds 1$ per ton extra. Ordinary casks $\pounds 1$ per ton, and barrels $\pounds 1$. 10s. per ton extra. Turpentine 21s. 6d. per cwt. Tallow is quoted at low rates from $\pounds 18$ to $\pounds 20$ per ton. Olive oil unchanged. Castor oil remains firm at 3d. per lb. for first pressure. Cod oil $\pounds 16$ to $\pounds 18$ per ton. Oleines unchanged. Yorkshire grease $\pounds 8$ to $\pounds 9$ per ton.

CAKES.—A quiet trade, with prices unchanged.

PAINTS.—Makers continue very active, and in some instances are compelled to work overtime to keep pace with their orders, which is more attributable to the requirements of the home trade than for export. Prices are:—White and red leads unchanged; dry colours, of which large quantities are shipped here, are but little changed—from $\pounds 3$ to $\pounds 8$ per ton; ultramarine from 3d. per lb., chromes from 4d. per lb. Ready-mixed paints are much competed for at various prices, according to make— $\pounds 24$ to $\pounds 26$ per ton. Imperial Black Varnish $\pounds 5$. 10s. per ton. Oak Varnish 5s. 6d. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

The demand for chemicals is rather better, and buying appears to have been stimulated by the advance in prices, made the end of last week, of soda crystals, alkalis, and Le Blanc ash for the home markets. Consumers generally, it is supposed, are carrying very light stocks. Caustic soda and bleaching powder practically remain unaltered. Sulphur is scarce at $\pounds 5$ per ton. There has been a sharp advance in chlorate of potash.

Bleaching powder, softs, $\pounds 6$. 10s. per ton, nett; hards, $\pounds 6$. 15s. per ton, nett; caustic soda, $76/77^{\circ}$, $\pounds 9$. per ton, nett; do., 70° , $\pounds 7$. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, $\pounds 5$. per ton, nett; soda ash, 48%, $\pounds 4$. 10s. per ton, nett; do., 50%, $\pounds 4$. 12s. 6d. per ton, nett; do., 52%, $\pounds 4$. 15s. per ton, nett; alkali, 36%, $\pounds 3$. 12s. 6d. per ton, nett; white alkali, 48%, $\pounds 5$. per ton, nett; do., 50%, $\pounds 5$. 5s. per ton, nett; do., 52%, $\pounds 5$. 10s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, $\pounds 6$. 5s. per ton, nett; do., 1 cwt. kegs, $\pounds 7$. per ton, nett; silicate of soda, 75° Tw., $\pounds 2$. 12s. 6d. per ton, nett; do., 100° Tw., $\pounds 3$. per ton, nett; do., 140° Tw., $\pounds 3$. 7s. 6d. per ton, nett; soda crystals, casks, $\pounds 2$. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, $\pounds 2$. 12s. 6d. per ton, nett weight; chlorate of potash, $5\frac{1}{4}$ d. per lb., less 6%; pearl hardening, $\pounds 3$. per ton, nett; pure white sulphate of alumina, $\pounds 3$. 17s. 6d. per ton, nett; blanc fixe, $\pounds 7$. 5s. per ton, nett; chloride of barium, refined crystals, $\pounds 6$. 15s. per ton, nett; do., 90/95% crude calcined, $\pounds 6$. per ton, nett; sulphide of barium, crystals, $\pounds 4$. 15s. per ton, nett; carbonate of alumina, $\pounds 30$. per ton, nett; aluminate of soda, $\pounds 30$. per ton, nett.

SALT.—South Durham salt is steady, at 9s. per ton f.o.b. Tees.

COALS.—Trade is rather dull for prompt business though there is a rather better enquiry for forward. The demand in gas and household coals is falling off. Coke continues steady at 15s. and 16s. per ton.

Best Northumbrian steam, 8s. to 8s. 3d. per ton; second quality, 7s. to 7s. 3d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton. Gas coals, 7s. 6d. to 8s. 3d. per ton. Bunker coals, 7s. 3d. to 8s. per ton. Household coals, 10s. to 11s. per ton. Coke, 15s. to 16s. per ton.

New Companies.

Road Traction, Ltd.—CAPITAL $\pounds 4,000$., in $\pounds 1$. shares. This company has been formed to carry on the business of manufacturers, licensees, hirers, and sellers of motor-propelled carriages, vessels, and machines. The number of directors is not to be less than 3 nor more than 8; the subscribers are to appoint the first. Registered office, 16, Craven-street, Strand.

India Rubber (Mexico), Ltd.—CAPITAL $\pounds 406,000$., in $\pounds 1$. shares, of which 6,000 are deferred shares. This company has been formed to adopt an agreement with the Mexican Finance Corporation, Ltd., to grow and deal in india rubber, &c. The subscribers to the memorandum of association are:—R. Evans, 419, Strand, W.C., clerk; H. E. Tookey, 38, Trafalgar-road, Greenwich, writer; H. E. Hosier, 15, Ashenden-road, Lower Clapton, clerk; R. J. Watson, 18, Clarence-road, Lower Clapton, clerk; E. Osborne, 15, Fasset-square, Dalston, clerk; W. Taylor, 9, Blendon-terrace, Plumstead, clerk; A. Smith, 41, Etherley-road, Tottenham, writer.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 13th.

Acetate of Lime—
U. States, 280 bgs. J. R. Francis & Co.

Acetic Acid—
Sweden, 4 pks. C. Windschuegl & Co.

Acetone—
Holland, 1 dm. J. Barber & Co.
France, 3 G. Rahn & Co.
Germany, 40 Domiei & Co.

Alum—
Holland, 220 pks. Ohlenschlager Bros

Alumina Sulphate—
Holland, 77 cks. H. Wallace & Co.

Antimony Ore—
Australia, 3 t. Dalgety & Co. Ltd.
France, 1 H. Johnson & Sons
E. Indies, 229 H. Grey, jun.
Portugal, 50 J. Bamber

Arsenic—
Italy, 3 brls. E. Bool

Asbestos—
Canada, 443 Capt. Hayes
640 Furness, Withy, & Co.

Barytes—
Germany, 77 cks. W. Harrison & Co.
Holland, 20 Ellam, Jones, & Co.
Belgium, 255 W. Harrison & Co.
300 bgs. Soundy & Sons
Holland, 27 cks. Robertson, Selley, & Co.

" 48 J. L. Lyon & Co.
Belgium, 79 J. L. Lyon & Co.
Holland, 77 T. & W. Farmiloe
Belgium, 129 A. Tumbeck & Co.

Bleaching Powder—
Belgium, 64 cks. H. Wallace & Co.

Camphor—
Germany, 4 cks. T. H. Lee

Caoutchouc—
Germany, 13 c. Wallace Bros.
Cooktown, 1 Lewis & Peat
Zanzibar, 3 Clarke & Smith
3 S. Fiegis & Co.
Madagascar, 10 L. & I. D. Jt. Co.
France, 25 H. Johnson & Sons
Belgium, 15 Sawyer, Sons & Co.
Aden, 17 Major and Field
Zanzibar, 25 L. & I. D. Jt. Co.
Aden, 30 L. & I. D. Jt. Co.
Penang, 158 Butter's Wf. Ltd.

Castor Oil—
Italy, 25 cks. Burron Harveys & Co.

Austria, 15 M. D. Co.
E. Indies, 20 W. Balchin
Belgium, 60 J. T. Morton

Caustic Potash—
France, 2 drs. J. A. Reid
Germany, 40 J. M. Steel & Co.

Caustic Soda—
Germany, 25 drs. E. Cook & Co.

Chemicals (otherwise undescribed)
Holland, 225 Hernu, Peron, & Co.
Belgium, 77 Soci   J. Cockerill
Sweden, 113 R. Greening
Germany, 39 Petri Bros.
" 144 T. H. Lee
" 787 A. & M. Zimmermann
" 50 L. & I. D. Jt. Co.
Brisbane, 140 L. & I. D. Jt. Co.
Holland, 23 J. Barber & Co.
" 18 T. H. Lee
Germany, 45 Phillips & Graves
U. States, 64 F. Parker
Germany, 5 W. J. Cook
Belgium, 40 Taylor Bros.
Holland, 15 Phillips & Graves
Germany, 200 H. Lambart

Cobalt Ore—
Australia, 29 t. R. Waters

Copperas—
Holland, 4 cks. A. & M. Zimmermann

Cream of Tartar—
Italy, 6 cks. J. C. Jabban
Holland, 3 Kirkpatrick & Co.
France, 5 B. & F. Wf. Co., Ltd.
" 11 C. Atkins & Nisbet
" 15 C. F. Gerhardt
" 35 W. C. Bacon & Co.

Dyestuffs—

Anthracene
Holland, 169 cks. Burt, Bolton & Co.

Argols
Italy, 769 bgs. B. Jacob & Sons
115 cks. Thames S. T. & L. Co.

" 5 Bailey & Leatham
Belgium, 424 bgs. B. Jacob & Sons

Cochineal
Canaries, 4 bgs. J. W. Borland

Cutch
Singapore, 200 cs. Borneo Co.

Extracts
Austria, 320 brls. A. J. Humphery

" 80 H. Grey, jun.
France, 25 cks. Beresford & Co.

" 10 B. & F. Wf. Co.
Denmark, 4 pks. Bailey & Leatham

" 1 cs. Sorensen & Co.
U. States, 55 pks. W. Burton & Sons

France, 40 cks. T. H. Lee

Gambler
Singapore, 897 bgs. Beresford & Co.

" 2,006 bis. Adamson, Gillfillan & Co.

" 1,690 E. Boustead & Co.

Indigo
E. Indies, 75 chts. J. Owen

" 73 Lewis & Peat

" 151 pks. Wrightson & Son

" 28 chts. Binny & Co.

" 49 Ralli Bros.

" 63 J. H. Hall & Wilson

Germany, 4 srns. T. H. Lee

E. Indies, 20 chts. Ross & Deering

" 112 Elkan & Co.

" 14 Arbuthnot, Latham, & Co.

" 21 J. H. Hall & Co.

" 27 W. France & Co.

" 14 Credit Lyonnais

" 37 Ernsthansen, Ltd.

Belgium, 1 cs. Soci   J. Cockerill

E. Indies, 21 chts. Parsons & Keith

" 16 Croysdale & Co.

" 109 H. W. Jewsbury

" 7 Comptoir Nat. de Paris

" 115 J. H. Hall & Co.

" 5 Marshall & French

" 13 J. H. Schroder & Co.

" 738 pks. A. B. Curtis & Co.

" 104 chts. Ross & Deering

" 568 P. & O. Co.

" 86 F. W. Heilgers & Co.

" 33 P. Macfadyen & Co.

" 671 L. & I. D. Jt. Co.

Logwood
B. W. Indies, 26 t. J. Hales Caird & Co.

Myrabolams
E. Indies, 4,000 pks. A. B. Curtis & Co.

Shumac
Italy, 200 bgs. Fisher, King & Co.

" 100 H. K. Daniels

Tanners' Bark
Natal, 27 t. J. T. Remnie, Son & Co.

" 50 Boucher, Mortimore & Co.

N. L. 2 Van der Meden & Co.

Turmeric
E. I. 10 kgs. W. Balchin.

Urina—
Holland, 100 bgs. J. Barber & Co.

Belgium, 50 J. Barber & Co.

Germany, 100 R. Bennett & Co.

Gamboge—
Hong Kong, 15 cs. L. & I. D. Jt. Co.

Glucose—
U. States, 50 pks. 300 c. Union Ltge. Co.

" 500 500 Thams S. Tug & L. Co.

" 1,250 1,250 Bellamy's Wf. Co.

France, 200 200 Robinson, Son, & Co.

U. States, 1,350 1,829 Ohlenschlager Bros.

" 850 850 Fellows, Morton, & Co.

" 750 750 Carey & Browne

" 500 500 Robinson, Son, & Co.

" 50 306 R. Johnson & Co.

" 50 144 J. T. Morton

" 50 300 Seawa d Bra.

" 750 750 Bennett S. S. Co.

" 50 300 C. Southwell & Co.

Germany, 25 200 Bennett S. S. Co.

U. States, 200 200 L. & I. D. Jt. Co.

" 8,063 14 180 R. G. Hall & Co.

Glue—
France, 4183 Burnett Bros. & Sons

Italy, 115 Hayes

Belgium, 232 J. Barber & Co.

Austria, 150 L. & I. D. Jt. Co.

U. States, 100 G. Rahn & Co.

Germany, 135 Ihlee & Sankey

Holland, 80 J. Harrison

Austria, 400 Armour & Co.

France, 74 Anglo. Am. Oil Co.

U. S. 21 Leach & Co.

Belgium, 292 M. D. Co.

Austria, 600

Insecticides—
Austria, 12 cs. H. Ruback

Iron Oxide—
Italy, 28 cks. M. D. Co.

Kalnit—
Germany, 51 t. F. W. Berk & Co., Ltd.

Lamp Black—
Sweden, 100 cks. Taylor Bros. & Co.

Litharge—
Holland, 16 cks. J. Owen

Lithopone—
Holland, 20 cks. D. Storer & Sons

Manure—
Holland, 30 t. Perkins & Homer

Belgium, 250 West & Penrose

E. Indies, 200 Fox Roy & Co.

Brisbane, 90 F. J. Cornwell, Son & Co.

E. Indies, 100 A. Hunter & Co.

" 200 Dundee, Perth L. & S. Co. Ltd.

Germany, 236 Anglo-Continental Guano Works

E. Indies, 200 P. & O. S. N. Co.

Metallic Oxide—
Germany, 4 cks. Brit. Anti-Fouling Co. Co.

Methyl Alcohol—
France, 20 dms. W. S. Barber

" 8 cks. J. Harrison

" 22 dms. F. V. Tucker

Mica—
E. Indies, 43,480 W. M. Smith & Sons

Germany, 27 H. & G. Duffield

U. States, 7 W. M. Smith & Sons

Molasses—
U. States, 500 cks, 3,120 c. T. Hickson

" 100 573 R. G. Hall & Co.

" 500 2,937 Falkenburg & Hesse

Ochre—
France, 15 cks. Burnett Bros. & Sons

Holland, 17 pks. 3 cs. Philipps & Graves

France, 118 cks. W. Harrison & Co.

" 15 brls. J. Flack

" 27 cks. J. L. Lyon & Co.

Phosphate Rock—
Belgium, 12 t. Sawyer Sons & Co.

Plumbago—
Germany, 17 cks. G. Mayor & Co.

Italy, 61 J. Thredder, Son, & Co.

Ceylon, 485 J. Thredder, Son, & Co.

" 3 L. & I. D. Jt. Co.

Germany, 4 W. M. Smith & Son

" 4 B. Galloway

" 6 T. H. Lee

" 8 Locke, Lancaster & Co.

Potash—
U. States, 65 c. Charles & Fox

Potassium Carbonate—
France, 91 c. J. A. Reid

Germany, 1041 W. G. Blagden

France, 95 Petri Bros.

Potassium Oxymuriate—
Sweden, 41 pks. G. H.

Potassium Permanganate—
Holland, 25 cks. G. R.

Potassium Sulphate—
Germany, 203 bgs. Bessler,

Pyrites—
Spain, 2,562 t. C. Temu

Rosin—
U. States, 23 brls. L. & I.

Holland, 10 Phillipps

U. States, 3,015 T. Nic

Saltpetre—
E. Indies, 2,006 bgs. Perkin

" 5,229 Lucas & Co.

Germany, 40 cks. L. & I.

E. Indies, 880 bags. Angk

Sodium—
Belgium, 100 c. R. W. C.

Sodium Acetate—
Holland, 61

Sodium Hyposulphite—
Germany, 160 kgs.

Sodium Sulphate—
Holland, 17 cks. H. Wal

Starch—
U. States, 100 bgs. W.

Holland, 750 cs. Little

Belgium, 617 F. Clay

" 40 J. Bai

Holland, 76 Phillipps

Belgium, 100 La

" 40

Germany, 1,500 H

U. States, 250 sks. C. Temu

Belgium, 32 pks. Hanz

U. States, 100 bgs. R. G. J

" 500 Ohlenschl

" 100

" 100 L. & J.

Brisbane, 80 cs. Goad, R

" 79

" 408 E.

France, 40 J. Bai

Stearine—
Belgium, 63 bgs. H. H

U. States, 10 cks. L. & J.

Sulphur—
Italy, 153 t. G. B

" 32 F. C. De

" 7 J. J

" 60 Perkins

" 70 S. E

" 500 F

" 2 10 c. A.

Sulphur Chloride—
Holland, 20 pks. Tyl

Sulphuric Acid—
Holland, 10 pks. Perkins

" 6 Flemi

Tartar—
Italy, 40 cks. Hovan

Tartaric Acid—
Holland, 13 pks. F. C. Des

" 34 B. & F

Germany, 4 F. C. Des

" 2 Dom

Ultramarine—
Holland, 2 cks. J. Bai

Varnish—
U. States, 10 pks. L. & I. U

Germany, 33 B.

Holland, 4 Phillipps

White Lead—
Belgium, 38 cks. J. L. Ly

Austria, 10 cs. Grosscurth

Holland, 40 cks. Fleming

Germany, 37 D. Stort

Belgium, 90 pks. Lea

Wood Pulp—
Norway, 300 pks. W. E. B

Sweden, 400 W. G. Tag

" 1,120 Hunsler

way, 800 W. Friedlander
gium, 1,746 F. Claydon & Co
eden, 1,661 Tough & Henderson
" 500 Alsing & Co.
way, 320 Tough & Henderson
land, 610 Philipps & Graves
many, 7 Craven & Co.
way, 253 Hummel & Co.
gium, 119 Henderson, Craig
& Co.

Oxide—
many, 2 cks. Brit. Anti-Fouling
Comp Co.
nce, 20 brls. M. Ashby, Ltd.
many, 98 4 cks. " "
" 30 cks. Soundy & Sons

LIVERPOOL.

Week ending March 11th.

ate of Lime—
ew York, 749 bgs.
inous Cake—
erdam, 105 cks.
ine Chloride—
elona, 2 cks.
ne Colours—
sa, 3 brls.
tes—
erdam, 90 cks.
ching Powder—
York, 2 cks.
Ash—
yres, 237 bgs. Balfour,
Williamson
Meal—
hay, 5,101 bgs.
chi, 5,001
ic Acid—
100, 12 cks.
endo, 210 sks.
ariso, 1,560
ic Soda—
pico, 1 dm.
icals (otherwise un-described)
burg, 10 cks.
rs—
erdam, 2 cks.
eed Oil—
Orleans, 150 brls.
n of Tartar—
to, 5 cks. Sachse &
Klemm.
eaux, 8
elona, 5 bskts. Sachse &
Klemm.
agona, 10 cks.
tuffs— 5 brls.
matto 25 cks.
eaux, 1 bskt.
gois 16 brls.
itch 2,810 bxs.
vi Divi 1 bg.
re, Cunard
S. S. Co., Ltd.
istic 96 ps. E. Chaloner
ston, & Co.
idigo 47 cs.
gwood
annah La Mar, 392 t.
ma, 12 t. Farnworth &
Jardine.

rabolams
day, 1,001 bgs.
umac
elona, 100 sks.
mo 150 bgs.
sa—
se, 100 bgs. Seltzer & Co.
100
we—
York, 400 brls. T. M. Duche
& Son.
400
York, 1 cs. Paris, Son & Co.
se, 40 bbs.
laire, 10
erdam, 21 cs. 118 bgs.

Iodine—
Valparaiso, 22 brls. A. Gibbs &
Sons
Lamp Black—
New York, 25 brls.
Manganese Ore—
Visagapatam, 1,000 t. Darwin &
Mostyn Iron Co.
Huelva, 1,000
Mineral White—
Fiume, 100 bgs.
Molasses—
New Orleans, 1,739 brls.
Alexandria 1,292 cks.
Ochre—
Carthage, 12 brls. 151 t. Goodlass,
Wall & Co.

Oxalic Acid—
Rotterdam, 8 cks.
Paint—
New York, 1 cs. W. B. Smith.
Paraffin Wax—
Boston, 150 brls. Makin &
Bancroft.
Phosphate Rock—
Brunswick, Ga., 1,046½ t.
Pyrites—
Huelva, 4,492 t. Matheson & Co.
Saltpetre—
Karachi, 392 bgs.
Hamburg, 30 kgs.
Antwerp, 100 bgs.
Soap—
New York, 2 cs. Colgate & Co.
Barri, 5
Rotterdam, qty
Boston, 10 cs. J. Thompson.
Laghorn, 150 bxs. Weaver &
Serry.

Soapstone—
Bordeaux, 300 bgs. Geo. G. Black-
well, Son & Co.
Starch—
New York, 2,425 bgs.
Amsterdam, 40 bxs.
Boston, 10 brls.
Norfolk, Va., 480 bgs.
Stearine—
Baltimore, 50 tcs.
Sulphur—
Catania, 15 bgs. 67 brls.
Tallow—
B. Ayres, 285 half pps. W. Bracht
& Co.
259 brls' 1,010 cks. 184 pps.
30 half pps.

New Orleans, 150 brls.
Baltimore, 446
New York, 50 bds.
Tartaric Acid—
Rotterdam, 2 cks.
Treacle—
New York, 392 brls.
Bordeaux, 30 bds. 5 cs.
New Orleans, 800 brls. T. D.
Simmonds & Sons.
Philadelphia, 20 brls. Wiseman
Wallace.
Rotterdam, 16 pns.
White Lead—
Rotterdam, 20 cks.
Wood Pulp—
Gothenburg, 34 pks. G. Schenken-
wald & Co.
446 bbs. G. F. Green
& Co.
Boston, 170
360 bds. Spicer Bros.,
Ltd.
Rotterdam, 211 bbs.
Zinc Oxide—
Rotterdam, 20 cks.

MANCHESTER.
Week ending March 13th.
Acetic Acid—
Rotterdam, 34 bts.
Alizarine—
Rotterdam, 40 cks. 32 brls 5 bxs.
Aluminous Cake—
Rotterdam, 147 cks.
Ammonia—
Rotterdam, 4 cs. 15 cyls.
Ammonium Acetate—
Rotterdam, 2 brls.
Aniline—
Treport, 1 btl.

Aniline Colours—
Rotterdam, 12 brls. 5 bxs.
Aniline Salts—
Rotterdam, 2 cs. 21 cks. 11 bts.
Antimony Salt—
Rotterdam, 24 cks.
Barytes—
Rotterdam, 12 cks.
Chalk—
Hamburg, 6 cs.
Coal Tar Products—
Rotterdam, 3 cks.
Colours—
Hamburg, 81 cks. 1 cs.
Boulogne, 3 cks.
Ghent, 2 brls. 3 pks.
Rotterdam, 1 tub 6 bxs. 114 cks. 20 brls.
10 pks. 28 cs.
Glue—
Hamburg, 5 bgs.
Treport, 4 cks.
Infusorial Earth—
Hamburg, 12 bgs.
Limestone—
Antwerp, 11 crts.
Ochre—
Treport, 40 cks. W. Harrison
& Co.

Pitch—
Hamburg, 53 brls.
Potash—
Hamburg, 2 cks.
Treport, 14 dms.
Potassium Oxalate—
Rotterdam, 1 ck.
Potassium Prussiate—
Rotterdam, 4 cks.
Sodium Sulphate—
Rotterdam, 3 dms.
Starch—
Hamburg, 22 cs.
Rotterdam, 135
Stearine—
Antwerp, 12 bgs.
Rotterdam, 14
Tar Salts—
Hamburg, 5 cks.
Tartaric Acid—
Rotterdam, 7 cks.
Ultramarine—
Hamburg, 1 cs. 4 cks.
White Lead—
Antwerp, 3 cks.
Rotterdam, 18
Wood Pulp—
Gothenburg, 4,281 bbs.
Christiania, 2,000
Drammen, 218
Hamburg, 5
Zinc Ashes—
Antwerp, 8 cks.
Zinc Oxide—
Antwerp, 5 brls.
Rotterdam, 37

HULL.

Week ending March 13th.

Acetic Acid—
Rotterdam, 30 balloons Hutchinson
& Son
Albumen—
Reval, 61 cs.
Aluminium—
New York, 28 bxs. Wilon,
Sons, & Co., Ltd.
Aniline—
Rotterdam, 1 ck. Hutchinson
& Son
Barytes—
Rotterdam, 63 cks. W. & C. L.
Ringrose
Amsterdam, 26 Hutchinson
& Son
Antwerp, 85 Blundell, Spence,
& Co.
Amsterdam, 142 W. & C. L.
Ringrose
Chemicals (otherwise un-described)
Stettin, 30 cks. Wilson,
Sons, & Co., Ltd.
Rotterdam, 2 1 crt. 10 bgs.
Hutchinson & Son
Antwerp, 197 pks. Wilson,
Sons, & Co., Ltd.
Dunkirk, 14
Hamburg, 5 cks. "

Rotterdam, 100 bgs. W. & C. L.
Ringrose
Cod Oil—
Drontheim, 20 brls. Wilson,
Sons, & Co., Ltd.
Christiansund, 6
Aalesund, 56
Bergen, 85
Christiansund, 35 cks. "
Colours—
Dunkirk, 26 cks. Wilson,
Hamburg, 4 pks. Sons, & Co., Ltd.
Bremen, 3 cks. H. W. Walton
& Co.
Stettin, 20
Amsterdam, 1 Hutchinson
& Son
Antwerp, 1 Wilson,
Sons, & Co., Ltd.
Rotterdam, 50 112 pks. 5 bxs.
W. & C. L. Ringrose
Cottonseed Oil—
New York, 200 brls. Wilson,
Sons, & Co., Ltd.
Dextrine—
Stettin, 40 bgs. Wilson,
Sons, & Co., Ltd.
Dyestuffs—
Alizarine
Rotterdam, 15 brls. 6 pks. W. & C. L.
Ringrose
Rotterdam, 1 Hutchinson & Son
Argois
Bordeaux, 74 cks. Wilson,
Sons, & Co., Ltd.
Fustic
Hamburg, 1,250 pcs. Wilson,
Sons, & Co., Ltd.
Indigo
Rotterdam, 1 cht. J. Pyefinch
& Co.
Madder
Rotterdam, 1 ck. J. Pyefinch
& Co.
3 cks. Hutchinson
& Son
Dyestuffs (otherwise un-described)
Hamburg, 1 ck. Wilson,
Sons, & Co., Ltd.
Farina—
Ghent, 10 bgs. Hutchinson
& Son
Stettin, 665 Wilson,
Sons, & Co., Ltd.
Harlingen, 450 bbs. Hutchinson
& Son
Glucose—
New York, 500 brls.
Glue—
Dunkirk, 203 cks. Wilson,
Sons, & Co., Ltd.
Antwerp, 11 Bailey &
Leetham
Lamp Black—
Gothenburg, 10 cks.
Minium—
Rotterdam, 15 cks. Hutchinson
& Son
Phosphate—
Dunkirk, 100 bgs.
Bona, 1,650 t. Wilson,
Ghent, 240 Sons, & Co., Ltd.
Pitch—
Amsterdam, 13 cks. Hutchinson
& Son
Hamburg, 1 tub Wilson,
Sons, & Co., Ltd.
Potash—
Hamburg, 20 dms. Wilson,
Dunkirk, 40 Sons, & Co., Ltd.
Pumice Stone—
Rotterdam, 12 cs. Hutchinson & Son
Pyrites—
Drontheim, 1,100 t.
Saltpetre—
Antwerp, 135 bgs. Wilson,
Sons, & Co., Ltd.
Sheep Dip—
Odessa, 100 cs.
Starch—
Ghent, 44 cs. Hutchinson
& Son
Bremen, 1,037 Veltmann & Co.
Amsterdam, 10 Hutchinson & Son
Antwerp, 120 O. S. Stephenson
& Co.
Ghent, 115 pks. Wilson,
Sons, & Co., Ltd.
Antwerp, 40 cs. "

Stearine —		
Christiansand,	40 brls.	Wilson, Sons, & Co., Ltd.
Antwerp,	50 bgs.	"
Tartar —		
Bordeaux,	6 cks.	Rawson & Robinson
Tartaric Acid —		
Rotterdam,	4 cks.	Hutchinson & Son
Treacle —		
New York,	750 brls.	Wilson, Sons, & Co., Ltd.
Turpentine —		
Bordeaux,	1 ck.	Rawson & Robinson
Libau,	53 brls.	"
Ultramarine —		
Rotterdam,	5 cs. 2 cks.	Hutchinson & Son
Yarnish —		
New York,	1 brl.	"
White Lead —		
Antwerp,	23 cks.	Bailey & Leatham
Rotterdam,	30	Hutchinson & Son
Wood Pulp —		
Stettin,	46 bls.	Wilson, Sons, & Co.
Zinc Oxide —		
Antwerp,	50 cks.	Bailey & Leatham

GLASGOW.

Week ending March 18th.

Acetate of Lime —		
Philadelphia,	727 bgs.	"
Arachide Oil —		
Rotterdam,	4 cks.	J. Rankine & Son
Barium Sulphate —		
Antwerp,	17 cks. 700 bgs.	"
Barytes —		
Rotterdam,	147 cks.	J. Rankine & Son
Camphor —		
Hamburg,	2 cks. 2 cs.	"
Chemicals (otherwise undescr'd)		
Rotterdam,	1 cs.	J. Rankine & Son
Hamburg,	3 cs.	"
Colours —		
Rotterdam,	39 pks. 1 cs.	J. Rankine & Son
Cream of Tartar —		
Barcelona,	28 cks.	"
Tarragona,	5	"
Dyestuffs —		
Alizarine	22 cks.	J. Rankine & Son
Rotterdam,		"
Aniline —		
Rotterdam,	5 cks. 3 cs.	J. Rankine & Son
Extracts —		
Antwerp,	4 cks.	"

Farina —		
Rotterdam,	1 cs.	J. Rankine & Son
Delfzijl,	612 bgs.	"
Glucose —		
Philadelphia,	600 brls.	"
Rotterdam,	20 cks.	J. Rankine & Son
Glue —		
Rouen,	12 pks. 100 cks. 80 cs.	"
Antwerp,	8 brls.	"
Ochre —		
Rouen,	10 cks.	"
Paraffin Scale —		
Philadelphia,	402 brls.	Anglo-American Oil Co., Ltd.
Phosphate —		
Dunkerque,	987 bgs.	"
Antwerp,	1,638	"
Pitch —		
Hamburg,	8 cs.	"
Potash —		
Rotterdam,	30 cks.	J. Rankine & Son
Amsterdam,	3	"
Pumice Stone —		
Bordeaux,	5 cs. 1 bg.	J. Rankine & Son
Rotterdam,	4	"
Pyrites —		
Huelva,	1,785 t.	Tharsis Co
Saltpetre —		
Hamburg,	5 cks.	"
Sodium Chlorate —		
Rouen,	62 cks.	"
Stearine —		
Rotterdam,	16 cks.	J. Rankine & Son
Tartar —		
Bordeaux,	4 cks.	"
Tartaric Acid —		
Rotterdam,	3 cks.	J. Rankine & Son
Treacle —		
Charente,	8 qr.-cks.	"
Drontheim,	22 brls.	"
Ultramarine —		
Rotterdam,	7 cs.	J. Rankine & Son
Yarnish —		
Antwerp,	3 tins 2 cs. 1 ck.	"
Waste Salt —		
Hamburg,	262 cks.	"
White Lead —		
Rotterdam,	91 cks.	J. Rankine & Son
Wood Pulp —		
Christiania,	2,212 bls. 20 cs.	"
Rotterdam,	48 pks.	J. Rankine & Son
Zinc Ashes —		
Antwerp,	8 cks.	"
Zinc Oxide —		
Rotterdam,	25 cks.	J. Rankine & Son
Antwerp,	20 brls.	"
Zinc White —		
Rotterdam,	100 cks.	J. Rankine & Son

TYNE.

Week ending March 13th.

Alum Earth —		
Hamburg,	21 cks.	Tyne S. S. Co.
Antimony —		
Antwerp,	400 t.	Tyne S. S. Co.
Barium Chlorate —		
Rotterdam,	349 bgs.	Tyne S. S. Co.
Barytes —		
Antwerp,	420 bgs.	Tyne S. S. Co.
Castor Oil —		
Antwerp,	28 brls.	Tyne S. S. Co.
Cod Oil —		
Bergen,	6 brls.	"
Drontheim,	21	"
Colours —		
Antwerp,	11 cks.	Tyne S. S. Co.
Hamburg,	9	Tyne S. S. Co.
Farina —		
Hamburg,	20 bgs.	Tyne S. S. Co.
Limestone —		
Antwerp,	8 crts.	Tyne S. S. Co.
Phosphate —		
Antwerp,	300 bgs.	Tyne S. S. Co.
Plumbago —		
Rotterdam,	2 cks.	Tyne S. S. Co.
Potash —		
Antwerp,	2 brls.	"
Pyrites —		
Huelva,	2,607 t.	Tharsis Sulphur & Copper Co.
Soap —		
Rotterdam,	2 cs.	Tyne S. S. Co.
Starch —		
Antwerp,	42 cs.	Tyne S. S. Co.
Rotterdam,	40	Tyne S. S. Co.
Tartaric Acid —		
Rotterdam,	10 cks.	Tyne S. S. Co.
White Lead —		
Antwerp,	11 cks.	Tyne S. S. Co.
Wood Pulp —		
Hamburg,	2 bls.	Tyne S. S. Co.
Christina,	80	"
Arendal,	1,600	"
Zinc Oxide —		
Antwerp,	35 brls.	Tyne S. S. Co.

GOOLE.

Week ending March 10th.

Alizarine —		
Rotterdam,	106 cks. 1 cs.	"
Alkali —		
Calais,	1 ck.	"
Aniline —		
Rotterdam,	328 cks. 68 cs.	"
Antimony —		
Boulogne,	2 cks.	"
Barytes —		
Rotterdam,	12 cks. 120 bgs.	"
Bog Ore —		
Delfzijl,	136 t.	"
Boracic Acid —		
Boulogne,	2 cks.	"
Caoutchouc —		
Boulogne,	9 cks.	"

Colours —		
Hamburg,	23 cks. 2 cs.	"
Dyestuffs (otherwise undescr'd)		
Boulogne,	33 ck. 4 cs. 25 pks.	"
Rouen,	18	"
Farina —		
Hamburg,	35 bgs.	"
Delfzijl,	1,203	"
Glucose —		
Hamburg,	71 cks.	"
Calais,	100 bgs.	"
Glue —		
Dunkirk,	10 bls.	"
Logwood —		
Belize,	346 t.	"
Ochre —		
Rouen,	74 cks.	"
Potash —		
Hamburg,	5 cks.	"
Calais,	7 dms.	"
Dunkirk,	20	"
Antwerp,	1	"
Saltpetre —		
Rotterdam,	200 bgs.	"
Hamburg,	22 cks.	"
Sodium Carbonate —		
Boulogne,	1 ck.	"
Sodium Silicate —		
Rotterdam,	2 cks.	"
Starch —		
Ghent,	64 cs.	"
Tartar —		
Rotterdam,	13 cks.	"
Tartaric Acid —		
Antwerp,	5 cks.	"
Ultramarine —		
Hamburg,	20 cks.	"
Rotterdam,	1	"

GRIMSBY.

Week ending March 13th.

Albumen —		
Hamburg,	7 cks.	"
Barytes —		
Rotterdam,	134 bgs.	"
Caoutchouc —		
Hamburg,	2 cs.	"
Rotterdam,	2	"
Chemicals (otherwise undescr'd)		
Rotterdam,	20 dms.	"
Hamburg,	1 ck.	"
Colours —		
Hamburg,	59 cks. 25 pks.	"
Rotterdam,	205	"
Antwerp,	77	"
Dyestuffs (otherwise undescr'd)		
Dieppe,	37 cks.	"
Farina —		
Hamburg,	1 cs.	"
Indigo —		
Rotterdam,	2 cks.	"
Wood Pulp —		
Malmo,	320 bls.	"

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending March 17th.

Acids —		
Cape Town,	2 cks.	£11
Acids and Ammonia (Liquid) —		
Coconda,	3 cs.	£13
Alkali —		
Rotterdam,	5 t.	£30
Santos,	5	9 c.
Alum —		
Mogador,	3 t. 8 c.	£70
Ammonia —		
Noumea,	3 chys. 6 c.	£28
Ammonia (Liquid) —		
Calcutta,	17 c.	£33
Malta,	2 pks.	18
Mauritius,	4 cs.	14

Ammonium Carbonate —		
Rouen,	5 t. 10 c.	£140
Paris,	2	73
Dunkirk,	1	28
Yokohama,	10 cks.	32
E. London,	10 c.	16
N. York,	20 t. 18 c.	588
Ammonium Sulphate —		
Bremen,	50 t.	£400
Dunkirk,	461	3,688
Hamburg,	120	798
Ghent,	120	960
Antwerp,	160	1,300
Ostend,	900	7,225
Amsterdam,	397	3,301
Capetown,	5	44
Colombo,	5	2 c.
Martinique,	112	817
Rotterdam,	101	17

Anhydrous Ammonia —		
Rangoon,	2 cs.	£13
Arsenic —		
Kurrachee,	6 cks.	£30
Natal,	10 c.	14
Barium Nitrate —		
New York,	1 t. 5 c.	£23
Bisulphite of Lime —		
Dunedin,	1 t. 2 c.	£15
Bleaching Powder —		
E. London,	40 drs.	£26
Algoa Bay,	1 t.	11
Bone Flour —		
Martinique,	8 t. 19 c.	£36
Borax —		
Rotterdam,	10 cks.	£27
Auckland,	15 c.	19

Algoa Bay,	4 t. 10 c.	
E. London,	2	10
Wellington,	20 bgs. 11	
Carbolic Acid —		
N. York,	40 cks.	
Treport,	89 tins	
Philadelphia,	50 cks.	
Bombay,	71 cs.	
E. London,	140 drs.	
Yokohama,	100 cks.	
Karachi,	24	
Caustic Soda —		
Algoa Bay,	2 t. 14 c.	
Santos,	11	8
Los Angeles,	25	11
Wellington,	5	11
Cape Town,	5	11
Napier,	5	3

als (otherwise undes.)—		
Al, 2 t. 17 c.	£60	
Ayres, 16 cs.	51	
7	40	
1	10	
10 kgs. 5 cks. 15 c.	150	
7 t. 17 c.	480	
10	14	
10	11	
1	55	
8 cks. 2 drs.	25	
33 dms. 5 cs.	25	
16 t. 18 c.	575	
2	14	
4 cs.	57	
4 t. 10 c.	35	
5	200	
27 cs.	13	
4	42	
8	3 cks.	45
acid—		
2 cks. 7 kgs. 1 t.	£213	
2 c.	12	
5	30	
1 t.	30	
10 kgs.	110	
5 cks.	59	
2 brls.	30	
5 kgs.	31	
10	31	
40	235	
oducts—		
rine		
4 cs.	£216	
ne Dyes		
1 cs.	£83	
1	27	
ne Oil		
10 drs.	£450	
10	4.0	
ne Salts		
74 cks.	£660	
racene		
127 cks.	£1,392	
ote		
19 puns.	£292	
100 brls.	£440	
News, 500 cks.	338	
82, 117 galls.	955	
ote Salts		
632 bgs.	£157	
300 bgs.	50	
tha		
41 brls.	£160	
thaline		
51 pks.	£43	
6 cks.	52	
683 bgs.	132	
88 cks. 350	334	
410 t.	£600	
News, 2,530 bgs.	423	
972	1,210	
1,065	1,637	
12 cks.	16	
400 bgs.	61	
ine Bases		
12 dms.	£189	
ong,		
20 cks.	£17	
600 dms. 20	61	
240 brls.	120	
350 dms.	14	
74 cks.	£429	
oducts (otherwise undes.)—		
20 brls. 10 dms. 1 cs.	£200	
Sulphate—		
41 t. 5 c.	£772	
5	94	
209	3,889	
44	870	
10	185	
173	3,777	
259	4,860	
55	1,026	
12	220	
17	330	
10	10	
ele,		
15 t. 17 c.	30	
of Tartar—		
10 cs. 10 c.	£89	
5	23	
15	64	
1 t. 5	115	
2	10	
1	10	
ants—		
75 cks	£133	
200 dms	90	
2 cs.	15	
26	114	

Madras, 1 t. 14 c.	44	
Auckland, 27	59	
Natal, 20 dms. 50 cs.	84	
Disinfectants and Ammonia		
(Liquid)—		
Santos, 7 cs.	£28	
Dried Blood—		
Ghent, 20 t.	£100	
Manganese Chloride—		
Barcelona, 15 t. 1 c.	£105	
Manure—		
Martinique, 80 t. 4 c.	£525	
Demerara, 50	425	
Cape Town, 3	10	
Cologne, 120	930	
Rouen, 30	85	
Nitric Acid—		
Sydney, 13 c.	£13	
Jersey, 14 cbs.	21	
Brisbane, 14 cs.	12	
Oxalic Acid—		
Melbourne, 3 cks.	£33	
Phosphate—		
Savanna, 6 t. 8 c.	£60	
Phosphorus—		
Melbourne, 4 cs.	£42	
B. Ayres, 6 c.	64	
Potash—		
Melbourne, 1 t. 8 c.	£52	
Potash Crystals—		
Genoa, 1 cs.	£12	
Potassium Bichromate—		
Auckland, 2 cks.	£38	
Potassium Chlorate—		
Lisbon, 6 t.	£203	
B. Ayres, 3	106	
Potassium Cyanide—		
Fremantle, 4 t. 3 c.	£270	
Rio de Janeiro, 2	10	
Adelaide, 2	15	
Normanton, 4	310	
Algoa Bay, 15	1,146	
Potassium Permanganate—		
Colombo, 8 c.	£35	
Potassium Prussiate—		
Stettin, 5 cks.	£47	
Danzig, 4	47	
Rotterdam, 1	21	
Antwerp, 1	12	
Saltpetre—		
Rio de Janeiro, 1 t. 7 c.	£31	
Natal, 10	12	
Algoa Bay, 1	2	
Cape Town, 13	13	
Sheep Dip—		
Delagoa Bay, 4 cs. 10	£10	
Natal, 5 c.	10	
Melbourne, 2 t. 2	70	
Algiers, 15	30	
Cape Town, 50	75	
Soda Crystals—		
Demerara, 1 t. 13 c.	£4	
Natal, 1	13	
Melbourne, 12	20	
Sodium Acetate—		
Melbourne, 1 t.	£14	
Sodium Bicarbonate—		
Marseilles, 10 t.	£72	
E. London, 13	13	
Natal, 5	10 c.	3
Algoa Bay, 10	7	
Wellington, 5	6	
Sodium Carbonate—		
Natal, 12 c.	£7	
Sodium Hyposulphite—		
Fremantle, 1 t. 2 c.	£10	
Sodium Nitrate—		
Alexandria, 6 t.	£60	
Sodium Prussiate—		
Boston, 5 cks.	£34	
Genoa, 1	12	
Sodium Sulphide—		
Colombo, 8 c.	£10	
Sulphur—		
Lisbon, 7 t. 7 c.	£67	
Ghent, 1	2	
Natal, 1	5	
Superphosphates—		
Martinique, 100 t.	£360	
Cherbourg, 105	210	
Rotterdam, 99	6 c.	298
Bundaberg, 30	446	
Strontium Nitrate—		
N. York, 6 t. 8 c.	£156	
Tartaric Acid—		
B. Ayres, 10 c.	£112	
Sydney, 1 t.	120	
Melbourne, 2	10	265

Hio, 15	81	
Vokohama, 1	114	
LIVERPOOL.		
<i>Week ending March 17th.</i>		
Acetic Acid—		
Santos, 19 c.	£12	
Albumen—		
Vera Cruz, 14 c.	£8	
Santos, 13	3 q.	85
Alum—		
Portland, 10 t. 2 c. 1 q.	£50	
Cape Town, 1	5	
St. John, N.B., 22	7	2
Volo, 6	93	
Honolulu, 5	7	
Aluminous Cake—		
Melbourne, 6 t. 2 c. 2 q.	£19	
Calcutta, 15	2	66
Ammonium Carbonate—		
Rotterdam, 12 c.	£17	
Newfairwater, 1 t. 5	35	
Ammonium Chloride—		
Salonica, 1 t. 10 c.	£48	
Piraeus, 10	15	
Barcelona, 2	10	49
Galatz, 6	9	
Ammonium Sulphate—		
Honolulu, 178 t. 9 c. 3 q.	£1430	
Rouen, 9	19	80
Newport News, 25	5	205
Yokohama, 2	5	11
Rotterdam, 20	180	
Barbadoes, 51	17	425
Carthage, 15	11	125
Pacasmayo, 10	3	85
Las Palmas, 55	5	453
Gd. Canary, 6	127	
Ghent, 200	13	1,720
Philadelphia, 76	10	1,235
Valencia, 85	7	745
Bleaching Powder—		
Ancona, 12 cks.		
Baltimore, 18	7 brls.	
Bilbao, 727		
Boston, 5 cs.		
Colombo, 78		
Dunkirk, 146		
Ghent, 22		
Havana, 58		
Leghorn, 4	21	32 kgs.
Libau, 20		
Lisbon, 67		
Melbourne, 382		
Newport News, 398		
New York, 20		
Oporto, 8		
Pernambuco, 143		
Philadelphia, 51		
Portland, M., 146		
Rangoon, 49		
Rouen, 50		
St. John, N.B., 20		
San Francisco, 20		
Vera Cruz, 3 t. 2 c.	£93	
Boracic Acid—		
Rotterdam, 4	7	
Genoa, 16	24	
Valparaiso, 7 c.	£7	
Borax—		
Aachen, 7 t.	140	
Cologne R., 2	42	
Natal, 10	8	3 q.
Barcelona, 10	3	209
Christiania, 1	8	11
Antwerp, 2	2	29
Delagoa Bay, 2	14	2
Rotterdam, 7	2	5
Ancona, 1	1	21
Hamburg, 29	13	57
Calcium Chloride—		
New York, 29 t. 5 c.	£56	
Boston, 29	13	
Carbolic Acid—		
St. Louis, Mo., 8 t. 6 c. 2 q.	£500	
Rotterdam, 13	10	604
Hamburg, 3	11	246
Leghorn, 5	22	
Rouen, 6	2	26
Odessa, 6 c.	£8	
Caustic Potash—		
E. London, 6 c.		
Caustic Soda—		
Alexandria, 35 dms.		
Amsterdam, 154		
Ancona, 10		
Baltimore, 200	5 brls.	5 cks.
Barcelona, 1		

Bilbao, 277		
Bordeaux, 17		
Boston, 300	54	
Brindisi, 19		
B. Ayres, 163		
Catania, 15		
Colon, 147		
Corral, 20		
Galatz, 390		
Genoa, 272		
Hamburg, 161		
Havana, 50		
Hio, 100		
Honolulu, 10		
Ibrail, 44		
Kingston, 10		
Konigsberg, 35		
La Guayra, 20		
Leghorn, 35		
Libau, 18		
Lisbon, 40		
Madras, 4		
Melbourne, 13		
Messina, 30		
Naple, 26		
Newfairwater, 71		
New York, 700	25 bxs.	
Odessa, 100		
Oporto, 45		
Palermo, 50		
Penang, 45		
Philadelphia, 300		
Reval, 20	50	
Rangoon, 20		
Rotterdam, 60		
Rouen, 48		
St. John, N.B., 50		
San Sebastian, 45		
Santa Cruz De La Palmas, 75 cks.	31 dms.	
Seville, 20 bxs.		
San Francisco, 10 dms.		
Singapore, 35		
Stettin, 12		
Tipoli, 30		
Valencia, 171		
Venice, 171		
Chemicals (otherwise undescribed)		
Calcutta, 40 t. 5 c. 2 q.	£107	
Naples, 1	33	
Boston, 5	8	2
Bombay, 13 brls.	38	
Christiania, 6	10	
Rotterdam, 2	52	
Hamburg, 6	10	
Bremen, 6	5	
Kurrachee, 15	24	
Philadelphia, 5	5	166
China Clay—		
Baltimore, 200 cks.		
Bombay, 110 bgs.		
Boston, 7	128	37 pks.
Calcutta, 6		
Lisbon, 180		
Melbourne, 40		
Naples, 40		
Newport News, 169		
New York, 12		
Philadelphia, 273		
Portland, M., 403	1 cs.	
Rio de Janeiro, 30		
Citric Acid—		
Santos, 2 c.	£15	
Coal Products—		
Aniline		
Para, 1 cs.		
Aniline Co.ours		
New York, 24 cks. 10 kgs.		
Aniline Dyes		
Calcutta, 1 cs.		
Aniline Oil		
Newport News, 10 dms.		
St. Nazaire, 4	10 tins.	
Aniline Salts		
Alexandria, 10 cks.		
Boston, 68 cs.		
New York, 8		
Syria, 1		
Anthracene		
Rotterdam, 100 brls.		
Creosote Oil		
Lisbon, 250 brls.		
N. Orleans, 829 cks. 295		
Creosote Salts		
Antwerp, 413 bgs.		
Pitch		
Cette, 610 t.		
Havre, 121		
Port Maria, 1	5 c.	
Rouen, 6 cks.		
Tar		
C. Coast Castle, 41 dms.		
Fiume, 9		
Galatz, 20 brls.		
Honolulu, 50		
Pt. Natal, 1,100		

Copper Sulphate—

Messina,	4 t.	16 c.	1 q.	£85
Odessa,	2	4		35
Bayonne,	20	10		541
Osiris,	6	12		113
Seville,	2	1		40
Cartagena,	1	1		21
Antwerp,	5	1	2	25
Charente,	62	15	2	1,115
Oporto,	15	1		250
Bari,	30	5	3	4.7
Bilbao,	4	2		75
Patras,	9	9	3	9
Patoum,	9	18	3	195
Fiume,	15	2		250
Lahuan,	1			20
Tunis,	20	10		503
Naples,	63	9	3	1,061
Bordeaux,	329	7		6,501
Tarragona,	32	10	2	582
Genoa,	438	1	3	6,981
Venice,	556	4	3	9,869
Leghorn,	193	15	1	7,121
Trieste,	22	16	2	410
Ancona,	19	19		312
Nantes,	137	11	3	7,130
Paris,	23	7		1,388
Brindisi,	40	15	1	657
Palermo,	14	17		240
Havre,	19	19	3	326
Lisbon,	10			158

Copperas —

Vera Cruz,	2 t.			£5
Smyrna,	2	1 c.	1 q.	5
Sydney,	4	10		12
Cape Town,	2	1		5
Tampico,	1	2		2

Creosote Salts—

Antwerp,	26 t.			£35
----------	-------	--	--	-----

Disinfectants—

Kurrachee,	30 cks.			£8
Havana,		13 c.		9
Calcutta,	3 t.	100 dms.		107
New York,	4	14 c.	3 q.	70
Bombay,	1	3	3	20

Dried Blood —

Las Palmas,	3 t.			£19
-------------	------	--	--	-----

Guano—

Barbadoes,	310 t.	2 c.		£2,790
Seville,	1	10		14
Colombo,	4			25

Hydrochloric Acid—

San Juan,	1 t.	2 c.		£16
-----------	------	------	--	-----

Iron Oxide—

Philadelphia,	21 t.	1 c.		£84
---------------	-------	------	--	-----

Magnesia—

Barcelona,	10 cks.			
------------	---------	--	--	--

Magnesium Chloride—

Calcutta,	11 c.			£10
-----------	-------	--	--	-----

Magnesium Sulphate—

Guayaquil,	4 kgs.			
Lisbon,	10 cks.			
New York,	10 bls.			

Manure—

Las Palmas,	39 t.			£184
-------------	-------	--	--	------

Muriatic Acid—

Pernambuco,	16 c.			£4
-------------	-------	--	--	----

Oxalic Acid—

Barcelona,	13 c.			£23
Tampico,	9			16
Boston,	3 t.	0		93

Paint—

Addah,	2 kgs.	4 dms.		
Alexandria,	15			
Antwerp,	22			
Axim,		2 cks.		
Bathurst,	28			
Calcutta,	160			
Cartagena,		10 cks.		
Colon,	45	1	4	
Constantinople,	270			
Ferrol,		2		
Galatz,	580	5		
Gibraltar,	12			
Habana,		24	4	
Halifax,			2	
Leghorn,		1		
Lisbon,	120			
Madras,		3 pks.		
Manos,		7		
Messina,	210			
Mollendo,	50			
Nagasaki,	280			
New York,	31			
Portland M.,		1		
Pt. Natal,	20		43	
St. John's, Nfld.,			10	
St. Nazaire,	105			
Salonica,		3 bls.		
San Juan,	10			
Santiago De Cuba,		4		
Savannah,	124			
Smyrna,	10			

Teneriffe,	120 kgs.			
Trieste,	120 dms.			
Valparaiso,	8 cks	10		18
Yokohama,		70		5

Painters' Colours—

Alexandria,	20 kgs.			
Bahia,	11 bls.			
Barcelona,		20 cks.		
Boston,	115	40		
Bremen,	200 bgs.			
B. Ayres,	20	60	37	
Calcutta,	23	650	1 cks.	
Christiania,		40		
Galatz,	5		5	
Genoa,		40		
Gothenburg,	50			
Hamburg,	75	2		
Honolulu,		10	37	
Ibrail,	5	10		
Iquique,			151	
La Guayra,		283		
Lisbon,	8			
Marseilles,	100	144	9	
New York,		10		
Para,	18			
Progreso,	15			
Rotterdam,	3			
Santos,		5	2	

Paraffin Wax—

Jaffa,	5 cks.			
Leghorn,	30 bgs.			
Para,		5 cks.		
Patras,	25			

Phosphoric Acid—

San Jose de Guatemala,	5 t.	12 c.	2 q.	£192
------------------------	------	-------	------	------

Phosphorus—

Havana,	6 c.			£90
Kobe,	5			65
Hiogo,	6 t	3		1,570

Picric Acid—

New York,	1 t.	1 c.	2 q.	£105
-----------	------	------	------	------

Potassium Bicarbonate—

Rangoon,		2 c.		£5
----------	--	------	--	----

Potassium Bichromate—

San Sebastian,	2 t.	1 c.	2 q.	£94
Tampico,	8			18
B. Ayres,	0	3		21
Piraeus,	1	19	3	84
Constantinople,	5	3		217

Potassium Chlorate—

Varna,		3 c.		£5
Hong Kong,	2 t.			67
Libau,	5			1,456
Vera Cruz,		10		18
Boston,	5			146
Konigsberg,	1			40
Ancona,	1	10		15
Odessa,	1			30
Philadelphia,	12	5		386
New York,	22	10		701
Rotterdam,	1			30
Pernambuco,	1	14		67
Gothenburg,	10			330
Reval,	1			316
Leghorn,	1			33
Hamburg,	1	10		47
Hiogo,	15			514
Sydney,		11		18

Potassium Prussiate—

Genoa,		19 c.	3 q.	£55
--------	--	-------	------	-----

Salt—

Abonnema,	40 t.	3 c.		
Antwerp,	74			
Barbadoes,	50			
Batanga,	15			
Bathurst,	14	14		
Boma,	37	10		
Bombay,	200			
Cabenda,	2	10		
Calcutta,	3	4		
Cape Town,	35			
Cape Cst Castle,	7			
Conakry,	54	9		
Copenhagen,	590			
Corral,		8		
Dordrecht,	734			
E. London,	33	1		
Ghent,	150			
Gibraltar,	1	10		
Gd. Bassa,	11			
Guayaquil,	1	13		
Hamburg,	247	15		
Iceland,	52			
Lagos,	100			
Manch,	65			
Melbourne,	130			
Monrovia,	2	10		
Newcastle, N.S.W.,	200 t.	1 c.		
Newfairwater,	676 t			
New York,	356			
Old Calabar,	50			
Opobo,	12	10 c		
Portland, M.,	161			
Rotterdam,	128			

St. John, N.B.,	100	10		
Savannah,	506			
Sierra Leone,	80			
Smyrna,		5 cks.		
Suymah,	15			
Sydney,	120			
Talcabano,	2	2		
Trinidad,	24	2		
Winnabah,	12	10		

Salt Cake—

Baltimore,	50 t	3 c.		£87
------------	------	------	--	-----

Saltpetre—

Halifax,	1 t.	10 c.		£33
----------	------	-------	--	-----

Sheep Dip—

Algoa Bay,	1 t.	2 c.		£31
------------	------	------	--	-----

Soap —

Accra,	80 bxs.			
Addah,	50			
Alexandria,		50 cks.	40 dms.	
Algoa Bay,	650	18		
Amboyna,	1,500			
Antigua,	100			
Antofagasta,	20	1		
Appam,	20			
Arecibo,	50			
Barbadoes,	1,466			
Batavia,	2,000			
Bathurst,	45			
Bombay,	210			
Calcutta,		19	312 bds.	
Cape Town,	137			
C. Coast Castle,	40			
Chama,	300			
Conakry,	75			
Curacao,	1,170			
Delagoa Bay,	965			
Dominica,	40			
E. London,	312			
Gibraltar,	250			
Gd. Lahou,	50			
Hamburg,	102			
Honolulu,		50	4	
Kimberley,		900		
Kingston,		262		
Kurrachee,				
Madeira,		12		
Manilla,		2		
Manaos,	250			
Menado,	100			
Monrovia,	37			
Old Calabar,	500			
Opobo,	3,240			
Para,	200			
Philadelphia,		1,000		
Pt. Elizabeth,	1,500	40		
Portland, M.,		1		
Pt. Natal,	630	236	30 cks.	
Pram Pram,	60			
Rangoon,		2		
Rotterdam,		350		
St. John, N.B.,		1		
St. Lucia,	100			
Sierra Leone,	125			
Shanghai,	4,734			
Singapore,	1,200			
Smyrna,	100	1		
Teneriffe,	175			
Trinidad,	850	1		
Valparaiso,	210	28		
Winnabah,	70			

Soda—

Portland, M.,	4 cks.			
---------------	--------	--	--	--

Soda Alkali—

Bilbao,	83 bls.			
Portland, M.,	35			
Sydney,	106	37 bgs.	00 pks.	
Volo,	10			

Soda Ash—

Algoa Bay,	30 bgs.			
Antwerp,	50			
Baltimore,	800			
Barcelona,		20 cks.		
Bombay,	21			
Boston,	480	34	100 tcs.	
B. Ayres,			110 bls.	
Calcutta,		141	200 kgs.	
Cartagena,	100			
Ghent,	100			
Hong Kong,		27 tcs.		
Kobe,		122		
Madras,	40			
Melbourne,		375		
N. Orleans,		16		
New York,	3,438	10	84	
Philadelphia,	7,000		5.0	
Piraeus,			20 bls.	
Rotterdam,	100			
St. John, N.B.,	80			
Salonica,		70		
Sydney,	231			
Varna,		4		
Yokohama,	100			

Soda Crystals—

Alexandria,	50 cks.			
-------------	---------	--	--	--

Ancona,	31	17 brls.	
Boston,	207	24 kgs.	100 kg
Bremen,			
Galatz,		10 brls.	
		20 kgs.	

Crystals—		
th—	5 c.	£14
ona,	1 ck.	
tar,	9 cs.	
anary,	1	
on,	1	
ork,	5	
o,	2	
ffe,	3	
Lead—		
la,	40 kgs.	
ital,	20 cs	
niso,	40	
hloride—		
ork,	13 t.	£132
ta,	9 c.	9

NCHESTER.

ek ending March 17th.		
ium Sulphate—		
Colours—		
dam,	4 kgs.	
Oil—		
rp,	3 dms.	
rg,	5 puns.	
lam,	13	
als (otherwise undescribed)		
rg,	7 cks.	
lam,	5	
ie Salt—		
p,	1 ck.	
ie—		
lam,	13 cks.	
g—		
ania	25 cks.	
Arseniate—		
p,	4 cks.	

HULL.

ek ending March 13th.		
	120 bgs.	
	25 dms.	
ancisco,	50 cks.	
ium Sulphate—		
ke,	600 bgs.	
	1,200	
dam,	7 dms.	
ing Powder—		
	26 cks.	
als (otherwise undescribed)		
dam,	25 cks.	90 pks.
p,	2 ck.	
ux,	2	10
stinople,	30	
ania,	356 slabs	4 cs. 7 pks. 5 dms.
burg,	82 cks.	5 11 cs.
rg,		45
		10
ork,	100	25
lam,	209	
	24	30
eed Oil—		
dam,	2,121	
p,	1,365	
k,	505	
k,	104	
rg,	1,021	
lam,	999	
	175	
	510	
ie—		
rg,	20 brls.	
ffs (otherwise unde rib d)		
	1 ck.	
	1 cs.	
ork,	37 cks.	
d Oil—		
dam,	356 c.	
ania,	285	
unsund,	77	
elim,	162	
	7	
rg,	559	

Stavanger,	130	
Painters' Colours—		
Antwerp,	26 cks.	6 pks.
Christiania,		2 dms.
Drontheim,	12	
Gotenburg,	1	
Hamburg,	347	176 cs.
Hango,		
New York,	144	13
Odessa,	201	
Reval,	1	1
Rotterdam,	3	2
Stettin,	19	1
Stavanger,	26	1
Phosphate—		
Harburg,	794 t.	
Pitch—		
Antwerp,	665 t	
Dunkirk,	99	
Soap—		
Antwerp,	13 cs.	
Christiania,	5	
Stettin,	1	
Starch—		
Constantinople,	10 cs.	
Libau,		5 bgs.
Odessa,	100	
Tallow—		
Hango,	2 cks.	
Tar—		
Amsterdam,	25 cks	
Dunkirk,	104	
Hamburg,	17	
Rotterdam,	1	
Varnish—		
Antwerp,	11 cks.	
Drontheim,		1 dm.
Gotenburg,		11 cs.
Stettin,	1	

GLASGOW.

Week ending March 18th.

Alkali—		
Iloilo,	5 t.	13½ c.
Ammonium Sulphate—		
France,	10 t.	2½ c.
Cullera,	200	14½
Valencia,	167	15½
Christiania,	6	1
Benzol—		
Rotterdam,	£325	
Bleaching Powder—		
Calcutta,	91 t.	17 c.
Boric Acid—		
Hiogo	£63	
Caustic Soda—		
Calcutta,	41 t.	
Coa Products		
Creosote		
France,	£505	
Creosote Oil		
France,	£833	
Russia,	942	
Naptha	£85	
France,	£550	
Italy,	463	
Portugal,	25	
Palermo,	25	
U. States,	55	
Hamburg,	31 t.	
Bombay,	32	
Karachi,	26	
Madras,	£20. 10s.	
Russia,	135	
Tar		
Calcutta,	£150	
Karachi,	102	
Madras,	£62. 1cs	
Penang,	275	
Russia,	799	
Singapore,	275	
U. States,	53	
Coal Products (otherwise undes.)—		
Schleswig,	£1. 8s.	
Hamburg,	77	
Amsterdam,	160	
Christiania,	61	
Germany,	370	
Rotterdam,	19	
Copperas—		
Bombay,	20 t.	19 c.
Dried Blood—		
France,	5 t.	½ c.
Extracts—		
Christiansand,	£16	

Guano—		
Manila,	3 t.	
Lime—		
Natal,	6 t.	17¼ c.
Linseed Oil—		
Manila,	2 t.	9 c.
Philippines,	3	
Litharge—		
Johannesburg,	£21	
Magnesium Silicate		
Saigon,	£72	
Manganese—		
Rotterdam,	qty.	
Manure—		
Genoa,	59 t.	2¼ c.
Valencia,	50	1½
Paint—		
Calcutta,	£40	
Demerara,	33	
Iloilo,	qty.	
Manila,	qty.	
Philippines,		
Rotterdam,	16 c.	
Painters' Colours—		
Calcutta,	£359	
Cape Town,	£47. 10s	
U. S.,	£152	
Cape Colony,	20	
Cape Town,	qty	
Bangkok,		
Bombay,	£141	
Hongkong,		
Christiania,	£11	
Paraffin Wax—		
Fiume,	£20	
Turkey,	90	
Barcelona,	155	
Bordeaux,	35	
Russia,	254	
Potash Salts—		
Mexico City,	£230	
Potassium Bichromate—		
Cape Town,	£22	
Italy,	465	
Turkey,	96	
U. S.,	870	
Rotterdam,	206	
Barcelona,	930	
Hiogo,	198	
Potassium Prussiate—		
U. S.,	£544	
Soap—		
U. S.,	1 t.	8¼ c.
Hong Kong,	2	10
Sodium Bichromate—		
Italy,	31 t.	1¾ c
U. S.,	1	10¼
Barcelona,	8	3½
Sulphuric Acid—		
Bombay,	£70	
Colombo,	52	
Madras,	251	
Penang,	49	
Tallow—		
Rotterdam,	9 t.	14 c.
Treacle—		
Gotenburg,	8 t.	16 c.
Christiania,	15	18
Turpentine—		
Manila,	£70	
White Lead—		
Calcutta,	£55	
Delagoa Bay,	20	
Natal,	42	

TYNE.

Week ending March 13th.

Alkali—		
Rotterdam,	13 t.	5 c.
Christiania,	6	11
Ammonia—		
Barcelona,	10 t.	14 c.
Ammonium Sulphate—		
Valencia,	208 t.	
Antimony—		
Antwerp,	1 t.	
Hamburg,	5	
Arsenic—		
Gotenburg,		3 c.
Christiania,	2	1
Barium—		
Rouen,	21 t.	2 c.
Barium Carbonate—		
Rouen,	25 t.	
Blanc Fixe—		
Barcelona,	5 t.	1 c.

Bleaching Powder—		
Antwerp,	86 t.	16 c.
Hamburg,	5	18
Lisbon,	15	1
Rotterdam,	53	2
Christiania,	12	6
Bergen,	17	11
Caustic Soda—		
Piræus,	11 t.	12 c.
Hamburg,	20	
Lisbon,	4	18
Rotterdam,	22	15
Christiania,	1	
Caustic Soda Bottoms—		
Antwerp,	19 c.	
Litharge—		
Rotterdam,		q.
Gotenburg,	1 t.	4 c.
Magnesia—		
Antwerp,		5 c.
Hamburg,	1	
Manure—		
Valencia,	12 t.	
Oxalic Acid—		
Barcelona,	5 t.	
Paint—		
Antwerp,	1 t.	15 c.
Hamburg,	1	15
Rotterdam,		10
Christiania,		3
Bergen,		5
Rosin—		
Antwerp,	2 t.	15 c.
Rosin Oil—		
Rotterdam,	1 t.	5 c.
Soda—		
Antwerp,	15 t.	6 c.
Hamburg,	30	
Rotterdam,	30	
Christiania,	5	3
Soda Ash—		
Hamburg,	8 t.	11 c.
Christiania,	15	
Bergen,	11	3
Sodium Silicate—		
Piræus,	17 t.	19 c.
Sodium Sulphate—		
Antwerp,	40 t.	2 c.
Lisbon,	5	3
Gotenburg,	50	
Sulphur—		
Gotenburg,	20 t.	
Zinc Ashes—		
Rotterdam,	3	18

GOOLE.

Week ending March 10th.

Benzol—		
Boulogne,	74 cks.	
Chemicals (otherwise undescribed)		
Amsterdam,	20 cks.	
Rotterdam,	1	
Hamburg,	40	
Coal Products (otherwise undes.)		
Antwerp,	104 cks.	
Boulogne,	23	3 cs. 4 dms.
Ghent,	10 tins	5
Hamburg,	125	27
Rotterdam,	1	
Colours—		
Antwerp,	2 cks.	
Hamburg,	6 cs.	
Manure—		
Brest,	140 t.	
Biuges,	176 bgs.	
Dunkirk,	1,318	
Hamburg,	129	
Pitch—		
Dunkirk,	173 t.	

GRIMSBY.

Week ending March 13th.

Alkali—		
Hamburg,	20 cs.	
Caoutchouc—		
Gotenburg,	3 cs.	
Coal Products (otherwise undes.)—		
Dieppe,	69 cks.	
Colours—		
Hamburg,	6 cks.	
Manure—		
Rotterdam,	300 bgs.	

PRICES CURRENT.

WEDNESDAY, MARCH 24TH, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	& 8/9
Glacial	"	40/-	
Arsenic S.G., 2000°	"	1	4 0
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1½
Oxalic	nett	0	0 3½
Phosphoric, 1750°	"	0	0 11½
Picric	"	0	0 11
Sulphuric (fuming 50 %	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
" 150°	"	1	5 0
(free from arsenic, 145°)	"	1	7 6
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2½
Tartaric	"	0	1 0
Arsenic, white powdered	nett	per ton	24 10 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	2 6
Aluminoferic	"	2	5 0
Aluminium (Ingot metal 98/99¾ %	nett per cwt.	7	17 6
Ammonia, Anhydrous	per lb.	0	1 3
" 880=28° B.	"	0	0 2½
" =24° B.	"	0	0 1½
" Carbonate	nett	"	0 0 3
" Muriate	per ton	18	15 0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
" Nitrate	per ton	33	0 0
" Phosphate	per lb.	0	0 4½
" Sulphate (grey) London	per ton	8	0 0
" (grey) Hull	"	8	0 0
Aniline Oil (pure)	per lb.	0	0 8
Aniline Salt	"	0	0 7½
Antimony	per ton	31	0 0
" (tartar emetic)	per lb.	0	0 9
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	17 6
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	42/6	to 65/-
Bleaching Powder, 35 %	nett	"	6 7 6
Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	12	0 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	"	15/-	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	nett per lb.	0	0 7
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0 8
Benzol, 90°	per gallon	0	2 7
50/90	"	0	2 4½
Carbolic Acid (crude 60°)	per gallon	0	2 6
" (crystallised 40°)	per lb.	0	0 8
" (liquid 95/97 %)	per gallon	0	1 0
Creosote (ordinary)	"	0	0 2
" (filtered for Lucigen light)	"	0	0 2½
Crude Naphtha 30 % @ 120° C.	"	0	1 1
Grease Oils, 22° Tw.	per ton	2	15 0
Pitch, f.o.b. Liverpool or Garston	"	1	3 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 8
Copper	per ton	49	7 6
" Sulphate	"	18	15 0
" Oxide (copper scales)	"	44	10 0
Glycerine (crude)	"	37	10 0
" (distilled S.G. 1250°)	"	70	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	10 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	12	15 0
" Litharge Flake (ex ship)	"	14	15
" Acetate (white)	"	23	0 0
" brown	"	15	10 0
" Carbonate (white lead) pure	"	16	15 0
" Nitrate	"	1	0 0

Lime, Acetate (brown) (ex ship)	per ton	5	0 0
" (grey) (ex ship)	"	8	7 6
Magnesium (ribbon and wire)	per oz.	0	2 3
" Chloride (ex ship)	per ton	2	7 6
" Carbonate	per cwt.	1	17 6
" Calcined Magnesia	per ton	9	0 0
" Sulphate (Epsom Salts)	per ton	2	15 0
Manganese, Sulphate	"	16	0 0
" Borate	per cwt.	2	10 0
" Ore, 70 %	per ton	3	10 0
Methylated Spirit, 61° O.P.	per gallon	0	1 8
Naphtha (Wood), Solvent	"	0	2 7
" Miscible, 60° O.P.	"	0	2 8

Oils:—			
Cotton-seed	per ton	15	15 0
Linseed	"	16	15 0
Petroleum, American	per gallon	0	0 6
Stearine	per ton	19	10 0
Phosphorus (yellow)	per lb.	0	2 2
(red)	"	0	2 8
Potassium (metal)	per oz.	0	3 7
" Bichromate	nett per lb.	0	0 4
" Carbonate, 90% (ex ship)	per ton	17	10 0
" Chlorate	per lb.	0	0 3
" Cyanide, 98%	"	0	0 11
" Hydrate (Caustic Potash) 90%	per ton	24	5 0
" (Caustic Potash) 75/80 %	"	20	15 0
" (Caustic Potash) 70/75 %	"	19	15 0
" Nitrate (refined)	per cwt.	1	1 6
" Permanganate	per cwt.	3	17 6
" Prussiate Yellow	per lb.	0	0 5
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	10 0
Silver (metal)	per oz.	0	2 4½
Sodium (metal)	per lb.	0	2 14
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15 0
" (Caustic Soda-ash) 48 %	"	4	5 0
" (Carb. Soda-ash) 48 %	"	4	0 0
" (Alkali) 58 %	"	3	17 0
" (Soda Crystals)	"	2	0 0
" Acetate (ex-ship)	"	13	10 0
" Arseniate, 45 %	"	15	0 0
" Chlorate	per lb.	0	0 4½
" Borate (Borax)	net, per ton	17	10 0
" Bichromate	per lb.	0	0 3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	9	5 0
" (74 % Caustic Soda)	"	8	2 6
" (70 % Caustic Soda)	"	7	2 6
" (60 % Caustic Soda)	"	6	2 6
" (pure liquor 90° Tw.)	"	3	15 0
" 77/78 % powdered (99 % hydrate)	"	13	10 0
" Bicarbonate	"	6	10 0
" Hyposulphite	"	5	5 0
" Manganate, 25 %	"	15	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8 0
" Nitrite, 98 %	per ton	30	0 0
" Phosphate	"	12	0 0
" Silicate (glass)	per ton	4	10 0
" (liquid, 100° Tw.)	"	3	10 0
" Stannate, 40 %	per cwt.	3	2 9
" Sulphate (Salt-cake)	per ton	0	10 0
" (Glauber's Salts)	"	1	7 6
" Sulphide	"	6	15 0
" Sulphite	"	5	0 0
Strontium Hydrate, 100 %	"	8	0 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 6½
" Barium, 95 %	"	0	0 4½
" Potassium	"	0	0 6½
Sulphur (Flowers)	per ton	7	10 0
(Roll Brimstone)	"	0	10 0
Brimstone: Best Quality	"	4	15 0
Superphosphate of Lime (26 %	"	2	15 0
Tallow	"	18	0 0
Tin Crystals	per lb.	0	0 4½
" English Ingots	per ton	64	0 0
Zinc Spelter	"	17	5 0
" Chloride (solution, 100° Tw.)	"	5	0 0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

315.

SATURDAY, APRIL 3, 1897.

Vol. XX.

Contents.

PAGE	PAGE
German Chemical Dividends..... 233	Motor Vehicles for Roads..... 239
ment of Widnes..... 234	Trade Notes..... 240
of Gold from Cyanide..... 234	Tar and Ammonia Products..... 240
..... 235	Miscellaneous Chemical Market..... 240
atest Complete Speci-..... 235	The Metal Markets..... 241
ing Power of Burning..... 235	Report on Manure Material..... 241
elf..... 236	Hall Paint, Oil, and Colour Report..... 241
ence..... 236	Liverpool Oil and Colour Market..... 241
emical Industry..... 237	West of Scotland Chemicals..... 241
g in the Engineering..... 237	Tyne Chemical Report..... 241
panies..... 238	New Companies..... 242
	Imports..... 242
	Exports..... 245
	Prices Current..... 248

ADVERTISEMENT.

D NAPHTHA (Crude) for Sale.—Apply,
"Naphtha," *Chemical Trade Journal* Office, Manchester.

Notices.

Communications for the *Chemical Trade Journal* should be
sent by Post Office Orders made payable to—

B BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, of the
Trade Journal,—payable in advance,—including postage
of the world, are as follows:—

By (52 numbers) 12s. 6d.
Yearly (26 numbers) 6s. 6d.
Quarterly (13 numbers) 3s. 6d.

are invited to forward items, of intelligence, or cuttings
newspapers, of interest to the trades concerned.

Communications for the Editor, if intended for insertion in the
next issue, should reach the office not later than **Tuesday**

reports, and correspondence on all matters of interest to
chemical and allied industries, home and foreign, are solicited.
Contributors should condense their matter as much as possible,
and send only of the paper, and in all cases give their names
and addresses, not necessarily for publication. Sketches should be
sent on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let,
Wants, and Special Articles for Sale by Private Contract are
accepted in the *Chemical Trade Journal* at the following rates:—

30 Words and under..... 2s. 0d. per insertion
Each additional 10 words..... 0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the
rates when prepaid, viz.:—

30 Words and under..... 1s. 0d. per insertion.
Each additional 10 words..... 0s. 3d.

Advertisements, Announcements in the Directory Columns, and all Adver-
tisements, are charged at the Tariff rates, which will be forwarded on

CURRENT TOPICS.

WORKS' EFFLUENTS IN SEWERS.

NOW the appeal in the Peebles-Oswaldtwistle case has
been heard and judgment delivered, it is permissible
for us to make further comment on the questions involved.

Mature consideration seems to have led nearly all those
affected by the case, whether directly or indirectly, to have
expected the reversal of the decision of Mr. Justice Charles.
It was freely stated that the case had only been considered in
regard to certain points of law, and that when tried on the
facts another verdict was inevitable. In a measure this sup-
position has proved correct, yet the judgment in the appeal
shows that even now the Master of Rolls has judged the case
from a purely legal standpoint. He did not refuse the
mandamus because the circumstances did not permit him to
grant it, but because it was not the legitimate legal remedy
according to the Act. Under the statute a new obli-
gation was enforced, but there was also a remedy in the event
of that obligation not being fulfilled, namely, an application to
the Local Government Board.

It was, therefore, only possible for the Court to give power
to the appellants to seek their remedy through this particular
channel, in contradistinction to a *mandamus*. It will thus be
seen that in point of fact we are no nearer a decision than we
were in December last, as it remains for the Local Government
Board to decide whether the appellants are entitled to the
remedy they claim or not, and his Lordship was most careful not
to influence or limit in any way the discretionary powers of the
arbitrating body. The most unfortunate part of this decision
is the relegation of the matter to the Local Government
Board, as it practically amounts to hanging the affair up
indefinitely. Apparently, however, his Lordship had no
alternative, and so the thing will have to stand.

THE CASTNER-KELLNER COMPANY.

This Company—a report of whose meeting is given else-
where in our columns—is to be congratulated upon its speedy
realisation of an output and upon the successful inauguration
of its working career.

We could have wished that this Company had been going
to employ its talents in a new rather than in a competitive
direction, but of course progress cannot be hampered by
sentimental considerations. The Chairman's speech seemed
to us, it is true, to concern itself too much with minor
matters, but perhaps that may be explained by the fact
that he was addressing shareholders, and saw no advantage
in entering into technicalities.

We should have liked, for instance, to know why the more
lucrative and easy electrolysis of the potash salt was not the
first rather than the second step, and it would have been in-
teresting to know more about the difficulties that have so
soon rendered necessary a purification of the brine. On the
other hand, we are quite prepared to accept in its entirety

Mr. Mather's statement with regard to the high quality of the products obtained, and await further information on what we are still inclined to think is the only real point yet undetermined, namely, the cost of production.

STATE GOVERNMENT FOR SEWAGE TREATMENT.

In the course of a paper read this week before the Manchester Statistical Society, favouring the culvert scheme for disposing of the Manchester sewage effluent, a new proposition was made with a view to solving the present difficulties of preventing river pollution.

We have frequently drawn comparisons between the results obtained under the Alkali Works, etc., Act, in regard to air pollution, and the outcome of the administration of the Local Government Board, and still more local joint boards', system for rivers, and Councillor Bradley has formulated a proposal which is practically in harmony with our long-suggested policy.

His idea is to obtain an Act of Parliament creating a new department to be called the Government Sanitary Court, employing permanent sanitary chemists and sanitary engineers, whose services should be exclusively devoted to this department. The Act should require that all places and rivers in England and Wales should be suitably grouped, and that all streams should be classified by their natural watershed or the main river into which they ran. At the same time, in accordance with the number of inhabitants living under any particular district council or town council, a member or members should be elected to represent them, such members being compelled by the Act to form joint boards for the particular districts. Further, the chairman of each board should be one of the chemical and sanitary engineers from London, and be changed from district to district, it being his duty to act under the advice and direction of the Government Sanitary Court and of the joint board for the watershed or main river.

One or two of the latter suggestions appear rather contradictory, but seeing that at the present time the rearrangement of the Local Government Board is about to engage the attention of Parliament, it is very fitting that constructive proposals and criticism should be indulged in, and the above proposals are worthy of serious consideration.

THE DEVELOPMENT OF WIDNES.

AN adjourned meeting of the committee convened by the Mayor of Widnes (Alderman Major Wareing) for the purpose of considering the best means of advancing the industrial interests of the borough was held in the Council Chamber at the Town Hall on Monday last, his Worship presiding over an influential gathering. Various matters were discussed, and the desirability of inducing new industries to settle in the town admitted, but no definite scheme was arrived at as to how that end can be secured. The question of forming a Chamber of Commerce was mentioned, and the Mayor promised to call a town's meeting for that purpose if a proper requisition were sent to him asking him to do so. That Widnes possesses great advantages as a manufacturing centre none who are acquainted with the place will deny, but at the same time it is difficult to force the growth of a town in an old country like this, where trade has settled into certain grooves and localities. There is a very general impression abroad that Widnes is fit for nothing but chemical, soap, copper, and iron works. For these it is known all over the country, and no doubt it is to manufactures of this class that will have to be looked to mainly for extension of local industry; but there are many other processes that might be carried on here with advantage to their promoters and the community at large. What is needed more particularly is employment for women and boys and girls, and clothing and boot factories have been mentioned as suitable. Those two branches of trade do not, however, by any means limit the field of industries available. The atmosphere is not so thickly impregnated with acids that ordinary machinery is unworkable in it. The geographical position of the town is a good one; it has facilities by water and rail which many

large and prosperous communities lack; and when with these are combined comparatively low rates, cheap, abundant, and pure water, the cheapest gas in the world—1s. 6d. and 1s. 8d. per thousand feet—it can confidently be asserted that Widnes offers to manufacturers and capitalists facilities which few towns can excel.

THE RECOVERY OF GOLD FROM CYANIDE LIQUORS.

IT has long been recognised that the success of the cyanide process of gold extraction largely depends on the cost of recovering the gold from the leaching liquors. It will be familiar to our readers that the essence of the cyanide process is the solution of gold (selective or otherwise, according to the conditions of extraction) in a weak solution of potassium cyanide. In the original method, formulated by M. McArthur and Forrest, the gold was precipitated from this solution by the action of metallic zinc, and the residual zinc, together with the gold, had to be worked up for the recovery of the latter. This highly inefficient process is difficult to smelt economically, and the cost of zinc consumed is not inconsiderable. The obvious idea of recovering the gold by electrolytic precipitation was first worked out by Messrs. Siemens and Halske. In their process, which has been extensively adopted on the Rand, cyanide liquor is electrolysed between iron anodes and lead cathodes. The latter are cupelled, and the gold is readily recovered; the anodes are somewhat attacked with the production of Prussian blue, the merits of the two processes are still under dispute, and neither is free from faults. It is therefore interesting to note that a fresh attempt has been made to improve the working of a most important part of the process which is, in spite of all shortcomings, an established success, now indeed a commercial necessity.

The idea which is about to be discussed has been elaborated by M. Andreoli, and appears to us sufficiently novel and interesting to warrant a description. In the apparatus devised for the realisation of the method of depositing the gold electrolytically, as in the Siemens process, is retained, but the execution is altogether different. The anodes are plates of lead covered with lead peroxide, produced "forming" them Planté fashion. The cathodes are plain iron plates clean enough to allow the deposited gold to adhere to them fairly well. The plates are arranged so as to be readily removable from the electrolytic bath, and are stripped of their gold by being dipped in a cupelling bath. The surface of the lead is covered with powdered charcoal to prevent oxidation, and, at the moderate temperature which is necessary for the formation of a film of ferrous-ferric oxide on the iron plate, the gold goes very far. If appreciable, it can be removed by pickling the plates in which is then replaced to receive a fresh film of gold. The plates are thus almost permanent, and the gold is obtained in the form of a solution in lead. Whether in practice it will be found necessary to have a second bath of lead in which to dip the plates after the gold has been stripped from them by the first, remains to be seen. It is a possible requirement, because particles of lead comparatively insoluble in gold will tend to hang on to the edges of the plates, and loss may thus occur unless this attached metal be removed by the dipping in a poorer bath. Such an addition to the process would, however, be of serious moment. Far more important than this is the life of the lead peroxide plates in the cyanide liquor. Lead peroxide is a body capable of parting with its oxygen fairly easily, and potassium cyanide is a substance susceptible of suffering oxidation without difficulty. M. Andreoli, however, states that he has had such plates in use for months without appreciable deterioration. Whatever the merits of this kind may be foreseen, it is certain that the method is simple and has a good *prima facie* chance of success. We hope that it will be thoroughly and fairly tried on a large scale.—*Electrician*.

Obituary.—We are sorry to learn of the death of Mr John Fairbairn, ex-mayor of Sheffield better known to the chemical trade in connection with his chemical and vitriol works at Attercliffe. Mr. Fairbairn has been a subscriber to the *Journal* since its earliest days.

KEKULE'S LIBRARY.—The aniline dye works *Farbenfabriken* Friedrich Bayer and Co., have bought the scientific library of Professor Kekule, of Bonn, which contains over 18,000 volumes, in order to increase their already very rich and extensive collection of scientific and technical literature.

CALCIUM CARBIDE.—The Home Office have made one small important correction in their recently issued rules for the sale of Calcium Carbide. The change has reference to the purity of the carbide (*vide C.T.J.* 512, p. 195). Clause (d) now reads:—"The carbide and use of commercially pure carbide of calcium only, and establishment of efficient arrangements for the sampling and testing of the carbide."

The Patent List.

This list is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of J. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

- A. B. Smith. 6,713. March 15.
 Big Block. J. L. Mortimer and J. H. Williams. 6,823. March 16.
 Gold. H. R. Cassel and B. C. Hinman. 6,881. March 16.
 Towers in Glover and Gay Lussac Towers. P. Jensen. 6,916. March 16.
 Electrolytic Diaphragm. F. Taylor, A. Cooke, and B. W. D. Mery. 6,929. March 17.
 Towers Relating to Aluminium. H. Griffith. 6,991. March 17.
 Water Gas. L. L. Merrifield. 7,013. March 17.
 Ammonium Nitrate and other Salts. W. Garraway. March 18.
 Burrs from Wool. H. Roberts. 7,075. March 18.
 Towers in Glover Towers. P. Jensen. 7,127. March 18.
 Destroying Coal, Destroying Smoke, etc. A. D. de Micheroux. 7,172. March 19.
 Ozone. E. Böhm. 7,177. March 19.
 Lead and Copper Acetates. A. Schmidt. 7,192. March 19.
 Metals from Cyanide Solutions. S. O. Cowper-Coles. 7,234. March 19.
 Secondary Batteries. F. E. Everard. 7,314. March 20.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, and the rights of publication are reserved. This is the earliest and the most complete of Chemical and allied patents accessible to the public.

Apparatus for Filtering, Washing, and Drying for the Treatment of Bicarbonate of Soda. W. L. Wise, John's-inn Fields (communicated by Solvay et Cie, No 25, Rue du Prince de Brüssel). Eng. Pat. 4,725. March 7, 1896.

The material to be filtered is placed in a trough, the contents of which are kept in suspension by an agitator. In this trough a drum on hollow trunions is caused to revolve. The periphery of the drum is formed of a perforated metal plate, or grid, covered with cloth, on which is fixed a layer of flannel or other filtering material. A slight vacuum is maintained within the drum to facilitate filtration. When the filtering surface becomes clogged, the vacuum is broken and the flannel washed by a reverse current of liquid from the trough, the level of the liquid inside being maintained by a valve at a higher level than the material in the trough. An arrangement of knives is also described, by means of which the layer of bicarbonate on the flannel is periodically removed. There are also figures, some of which relate to modifications, and also to automatically regulating the vacuum and operating the washing and scraping arrangements. The apparatus is applicable to the filtration of liquids of any substance having physical properties similar to bicarbonate of soda as obtained by the ammonia-soda process.

Improved Process for Obtaining Chemically Pure Gold from Fine and Alloys Rich in Gold. W. P. Thompson, 6, Lord-street, Liverpool (communicated by Dr. E. Wohlwill, 31, Elbstrasse, Hamburg). Eng. Pat. 4,725. April 13, 1896.

The process is a laboriously elaborate specification leads finally to the claims. A hot solution of gold chloride, containing an excess of hydrochloric acid, is electrolyzed with high density currents. When the solution is electrolyzed to obtain chemically pure gold, the conditions of current and electrolyte are the same, but the anode is a layer of silver chloride, which is removed periodically by mechanical means. With plumbiferous ores sulphuric acid is added to the electrolyte, and the lead sulphate removed from the electrolyte. Salt may be substituted partially for HCl to form chlorides.

Process in Obtaining Alkaline Salts from Blast Furnaces or Gases and Apparatus therefor. G. Craig, Lugar Iron Works, N.B. Eng. Pat. 4,489. February 28, 1896.

The gases are tapped from the lower zone of a blast furnace, and are passed through a cooler into a pipe which conveys them to the dry scrubber. In this pipe is a conveyor, as part of the salts condense in the scrubber, and are thus carried forward to the dry scrubber. This is a box, fitted with partitions and revolving scrapers. On the

partitions are perforated trays. After these have been coated with a layer of deposited salts, the gases as they pass are freed from alkaline salts, and the gases pass on and escape. As the layers accumulate they are removed by the revolving scrapers, which always leave a constant layer to filter the gases. There are five figures.

Improvements in Means for Burning Residues from the Distillation of Petroleum for Heating Purposes. F. Grube, Marktplatz 4, Eimsbüttel, Hamburg. Eng. Pat. 16,574. July 27, 1896.

This burner is not on the atomizing principle. On the contrary, the masut or other residue is burnt in the gaseous state. Hot air from the fire-box, or otherwise heated with waste heat, is passed through the masut, which is gasified and passed by a compressor into a receiver, and thence to the boilers, etc. Here the gaseous mixture or air-gas is burnt in a special burner, to which air is supplied both externally and internally, somewhat after the fashion of a central draught lamp burner, only the fuel is gaseous instead of liquid. There are eight figures.

An Improved Method of and Means for Removing "Scurf" or Retort Carbon from Gas Retorts. C. Billington, jun., Albert-terrace, Wolstanton, Stoke-on-Trent. Eng. Pat. 7,286. April 4, 1896.

Compressed air derived from any suitable source, which may either be portable or stationary as is most convenient, is conveyed to a suitably-shaped nozzle, and directed on to the carbon so as to penetrate between the lining of "scurf" and the retort. A thin layer of carbon is thus consumed, and the shell of "scurf" can then be withdrawn. There is one figure.

THE ILLUMINATING POWER OF BURNING OILS.

[SPECIALLY CONTRIBUTED.]

It is often stated by certain sections of the oil trade that American petroleum oil is "cleaner" than Scotch paraffins for illuminating purposes. It is not always easy to know exactly what is meant by this term, but it is generally coupled with the statement that American burning oil or kerosene gives a greater illuminating power.

In the face of this it will be interesting to record the facts revealed by a series of actual experiments. Space will not allow the publication of the tests of each oil, but by giving the average results of all the experiments, a reliable basis from which to draw comparisons will have been established. In the first place the figures given below are the average of a number of experiments on all makes of Scotch oil, while several samples are also represented by the average figures for American oils. The samples were purchased in the open market, and the tests made strictly comparative. The burners used were ordinary 1½ inch single wick, and were made by a well known maker. New wicks of the very best quality, all cut from the same roll, were used for each test. Glass oil containers of identical shape and size, having a capacity of one quart, were employed. The lamps were carefully trimmed, then lighted and turned up full. The readings were taken after they had burned for half an hour, and again after five hours without the wick being in any way interfered with. The photometer used was a Bunsen-Lethaby. Only the horizontal rays were measured, and not those projected at various angles, as is the practice of Redwood. The method employed was thus exactly similar to that used by gas examiners. Redwood's method gives much higher results, and is somewhat misleading.

		Average Results.	
		Scotch.	American.
Illuminating power after ½ hour.—Stand. candles		12.93	9.64
" " " 5 hours.		10.61	7.52
" " " Mean.		11.77	8.58
Duration of test	.. .. .	5h. 11m.	5h. 10m.
Oil consumed. Grains.		3467	3102
" " " per hour. Grains.		668.3	600.4
" " " " per C.P. Grains.		57.0	69.9
Diminution of illuminating power after 5 hours	.. .. .	17.94%	21.84%
Specific gravity	.. .. .	802.0°	797.7°
Flash point (Abel)	.. .. .	119¼°F.	75½°F.
Tint (Lovibond's tintometer)	.. .. .	1.29	1.25
Comparative value of 1 gallon	.. .. .	6.0d.	4.86d.

These results are most instructive, and are conclusive as they are supported by the most reliable and declared testimony.

They show that the Scotch oils have the advantage in everything except colour, which is scarcely a factor in determining the value of a burning oil. In regard to safety, illuminating power, maintenance of illumination, and consumption per candle power of light emitted, the American oil is a bad second. An oil is burnt to obtain light, and it will be seen that the value calculated on the illuminating power shows a balance of 1½d. per gallon in favour of the Scotch oils, popular beliefs notwithstanding.

Our Book Shelf.

THE MANUFACTURERS' PRACTICAL UP-TO-DATE RECIPE BOOK.
By L. Jameson. 528 pp., including index. London: Lewis Jameson and Co. 1897.

After a marked dearth of useful and practical recipe books we seem lately to have a plethora, but each succeeding issue has been an advance, and in the case of this, the latest of all, the seeker after trade recipes will find enough material to surfeit himself.

The compilation comprises nearly 3,000 recipes which for the most part are out of the ordinary run, and, as far as our experience goes, reliable in the hands of the unskilled. The ground covered is extensive. Starting with colours, paints, and driers of all kinds, qualities, and colours, we come to japans, enamels, varnishes, and stains. Oils, greases, lubricants, and soaps then follow, these sections including a number of modern methods for preparing solidified oils and petroleum jellies. The rest of the book is made up of a miscellaneous collection of recipes for the preparation of blues, blacking, polishing and leather compositions, inks, disinfectants, sheep dips, and sundry druggists' and toilet requisites. In so wide a range it will indeed be an up-to-date man who cannot find something new or useful.

The book is one which is intended to appeal largely to a class that is comparatively ignorant of technical matters, and therefore the author has aimed at making it something more than a mere collection of recipes. The instructions as given are in the first place a distinct advance as regards minuteness of detail and simplicity upon the old-style recipe books. In addition to this, short essays or prefaces to the sections have been interpolated, so that we find a sketch of the manufacture of ultramarine, chrome colours, resin distillation, oil and tallow testing, bleaching and refining, oil and grease extraction and saponification.

Strange to say, however, it is in these portions that the most serious errors occur, and it is disappointing to find that in the majority of cases the mistakes are due to carelessness, though there are exceptions where the facts are at fault. In short, the book suffers from an over speedy production. The seeker after information on any one subject is likely to miss much, as many different recipes for the same thing are scattered up and down the text. This drawback is largely discounted by the full index, which is well compiled and will help greatly in the convenient use of the book. The author roundly decries the recipes given in technical journals, but we can recognise in this up-to-date collection a few of our own offspring that first saw light some years back in the *Journal*. In the 33 recipes for Vermilionettes and Royal Reds in which Eosine is prescribed, there is no guide as to whether Eosine A, G, L, BN, Y, J, or J extra is to be used. In other recipes some trouble is likely to be met with, owing to a misprint of percentages for specific gravities, and in one or two cases the headings, descriptions, and recipes of certain greens have got mixed up by transposition. An old crank that we thought had died a natural death—the "mixture" for rendering petroleum non-explosive, etc.—has taken a fresh lease of life, by creeping in to a new home on page 281.

It was not to be supposed that such a book would be wholly free from errors of a typographical nature, but from the above selection it will be seen that they are not confined to this class. At the same time, by thus pointing them out it will be an easy matter to make the third edition almost perfect, as on its collective merits the second should soon be exhausted, since, despite certain blemishes, the book is the best of its kind up to the present.

CHEMISTRY FOR BEGINNERS. By E. Hail. 245 pp., with index. 64 illustrations and plates. Third edition, revised and enlarged. Easton: Chemical Publishing Co., 1896. 6s. 6d. (\$1.50).

This work is a strange contrast to its customary counterpart in the English teaching system. Even in the earliest stages elementary and applied chemistry are combined in such a way that the student obtains a glimpse of what his theoretical studies are leading him to. He also sees how theory is essential to the comprehension of many familiar and everyday matters.

The improved system of spelling—such as chlorin, sulfid—is adopted throughout; but if sulfur, why not fosforus instead of phosphorus? Nevertheless, though in such matters the book jars the susceptibilities of English chemists, it must be admitted that it is characterised all through by the spirit of practicability, which makes the difference in utility between many of our young chemists and the American product.

The sketches are largely original and in most cases good. The apparatus for preparing hydrogen is misleading as depicted, yet some of the sketches are most instructive. The condenser described on page 173 is a lesson to young chemists in ingenuity and self-reliance. The book covers the elements of organic and inorganic chemistry, and is

refreshingly independent of any syllabus or course. It is an educational work.

THE GASES OF THE ATMOSPHERE. By W. Ramsay, F.R.S. 240 with portraits and figures. London: Macmillan and Co., 1896. 6s.

This book does not appeal to those solely interested in the commercial side of science, but it will be well, in the present state of educational controversy, if those who blindly pin their faith to one kind of technical education will give a couple of hours to the perusal of this work. It aims at giving an accurate description of the discovery of argon that will be intelligible to persons without any special scientific training, and it achieves the end in an able fashion.

Those who have read the *Alembic Club Reprints*, which have been reviewed one by one in these columns, will be familiar with much of the material in the first four chapters, covering as they do the experiments and theories of Boyle and others; the work of Black and Rutherford on "fixed" and "mephitic" air; and the experiments and discoveries of Priestley, Scheele, Lavoisier, and Cavendish, embellished by biographical sketches of these workers. The remaining three chapters tell in a sound but interesting way the story of the discovery of argon, describe its properties and position among the elements. They show how intimately the purest research is connected with the development of everyday science.

DIRECTORIES.—*Chemical Manufacturers' Directory*.—We received the 1897 edition of this hardy annual, which is now in its 29th year. It contains all the old features, and has been revised to keep pace with the various changes that occur in the chemical industry. It covers England, Scotland, Wales, and a selection of chemical manufacturers in Ireland. It is published by Messrs. Simpkin, Marshall, Hamilton, Kent, and Co., Ltd., Paternoster-row, at 2s. 6d. post. *Paper Makers' Directory* (2s. 6d. post free).—Messrs. Marchant, Singer, 4, St. Mary Axe, E.C., whose directory we noticed a time back, have sent us a copy of their pocket edition. It measures about five inches by three, and being barely three-eighths of an inch thick, should be handy for travellers and others, as it will fit into an average-sized wallet. It is an exact reproduction of the larger directory, and has a number of blank pages for memoranda. The printing is excellent, the type being clear and perfectly legible in spite of the reduction. *Souvenir of Port Sunlight*.—This production is characteristic of the firm which issues it. The illustrations of the model works, and the general get-up, prove that it can print as well as make soap. The letterpress gives an insight into the co-operation of lines on which Messrs. Lever Brothers work with their employees.

Legal Intelligence.

LIVERPOOL ASSIZES. NISI PRIUS COURT.

(Before Mr. Justice Kennedy, without a jury).

PANNENBERG V STOCKDALE.

The plaintiff, Julian Pannenberg, chemical manufacturer in Germany, sought to recover from the defendants, T. H. Stockdale and Liverpool, brokers, the sum of £483. 0s. 9d. for manganese, supplied by the plaintiff and transferred to the defendants. Mr. Pannenberg, and Mr. R. Isaacs were for the plaintiffs, and Mr. Pannenberg, and Mr. Horridge represented the defendants. The question to be decided was with whom was the contract made, and whether the plaintiff in dealing transferred the goods to Ernest Smith or did he was dealing with the firm of C. H. Smith, of the chemical works, Workop, Nottinghamshire.—Mr. McCall said that the plaintiff had the habit of advertising his goods in some English papers. In 1894, Mr. C. H. Smith carried on business without a partner at Workop. His son, Ernest Smith, had been on the London Stock Exchange, but, not being successful, he lived about this time at Workop, and was not connected with his father's business, but he had the use of his father's office, and also used his father's stationery. The question was that Ernest Smith, by representing to the plaintiff that he was carrying on business at the chemical works, Workop, owned by his father, received from plaintiff the goods, and that they were subsequently passed on to the defendants, who made advances to Ernest Smith against the articles. It became necessary for the plaintiff to look for his goods, and he accordingly demanded them from the defendants, who, it was contended, were acting for Ernest Smith, who had appeared. The writ in this action was afterwards issued.—The plaintiff in his evidence stated that he did not know Ernest Smith in connection with the transactions.—For the defence, Mr. T. H. Stockdale was called and deposed that Ernest Smith told him that he was trading as

of Workshop. Mr. C. H. Smith was a charcoal manufacturer, and deal in the same articles as his son, and would not require in his business.—Cross-examined, witness added that he had other articles for Ernest Smith.—Mr. Pickford contended that Smith traded as Smith and Co., and that the plaintiff contracted with Smith and Co., and not with C. H. Smith. There was no notice made by Ernest Smith to the effect that he was carrying on in the name of his father, and therefore, counsel submitted, there was no contract between plaintiff and E. Smith, and plaintiff could not succeed as against the defendants.—His Lordship, in delivering judgment, which had been reserved, remarked that this was one of those cases in which a court had to decide as between two innocent persons in whom should fall the consequences of fraud practised on a third party. That had to be settled by determining whether there had been a contract under which the goods were parted with by the father. In his opinion there was no such contract, and he must give judgment for the plaintiff.—A stay of execution, on terms, was granted.

SOCIETY OF CHEMICAL INDUSTRY.

NOTTINGHAM SECTION.

The annual meeting of the above section of the Society of Chemical Industry, was held on March 24th at University College, Nottingham, F. J. R. Carulla in the chair. There was a fair attendance including Mr. L. Archbutt, Professor Clowes, Mr. Otto and others. Scrutineers having been appointed for the ballot, Wood, the hon. sec., read the annual report which states that the annual meeting of the Section last year seven meetings have been held and eleven papers and other communications have been read. Section. Mr. John White F.I.C. County Analyst for Derby, read in April on "Filtration and Domestic Filters," and Mr. H. F. I.C. read one at the May meeting on "An Evaporative Method for Lubricating Oil." The Section is indebted to Dr. H. Wood for two papers connected with the subject of acetylene, and the other papers besides the chairman have been Messrs. J. M. C. F. Burford, Thos. Reader Smith, R. M. Caven, and James. Meetings have been held at Nottingham, Derby, and Trent, and it is intended next month to hold the meeting in London.

A diagram was exhibited which showed at a glance the progress of the Sections of the society from March 1896 to February 1897 inclusive. The report concluded "It will be seen that although sending in the shortest papers maintains as good a position amongst the Sections as can possibly be expected for its size, the number of members we have entered as belonging to the Section is hoped that we shall be able to increase the membership of the Section during the coming year."

The election of Mr. James O'Sullivan of Burton as chairman for the coming session, the other changes being the election of Messrs. S. F. Burford, and F. J. R. Carulla to the office of secretary and treasurer respectively.

The annual report of the treasurer (Mr. S. J. Pentecost), which was read, showed the Section to be flourishing financially, having been received, and he said he had much pleasure in moving a vote of thanks to the Finance Committee for use of rooms in the College. He felt sure that the members of the Section, but the Society as a whole, were honoured by having one of its Sections thus housed by the College, and the favour that was accorded to it. Mr. Kempson seconded the resolution which was carried with acclamation.

Archbutt then read a most interesting paper on "Hehner's Thermal Test for Oils" giving his experience in favour of the test, which differs from that of other experimenters who possibly have not given the subject the very careful attention which it is evident Mr. Hehner has bestowed upon it. The great saving of time that the new test effected, and its simplicity over the Hübl method led Archbutt to thoroughly study the matter, and he finds that there is a close relation between the thermal value and the Hübl Iodine value. The Bromine value needs no special re-agent for its determination, and can be determined within half an hour or less. In his experiments, Mr. Archbutt found no difficulty in following the method of working described by the authors of the process, Messrs. Hehner and Mitchell (*Analyst*, 1896). The test is made, preferably, in the vacuum jacketed test-tube suggested by the authors. The bromine is added to the solution of the oil or fat to be tested, and the mixture is slowly stirred with the thermometer. In about 15 seconds the temperature is attained and the rise represents the "Bromine value." Hehner and Mitchell found it sufficient to employ a constant value of 5.5 for the conversion by multiplication of the thermal value to iodine values. Mr. Archbutt however finds it desirable to use different constants for different oils, doubtless in part because he found it advisable to work with varying weights of the oil or

fat. Thus in the cases of tallow, olive oil, and linseed oil, the factor has varied from 5.7 to 6.2.

Experiments conducted with the view of ascertaining in what way the condition of the bromine affected the test, led to the conclusion that whether the bromine is used as purchased, saturated with water, or rendered anhydrous, the results are practically identical—a recommendation for the test that cannot be easily over-rated.

The most convenient quantities to work with, appear to be 2 grams. in the case of tallow, which are dissolved in 10 c.c. of chloroform, to which 1 c.c. of bromine is added. For olive, rape, and most oils, 1 gram. is a suitable quantity, but for linseed oil, which reacts violently with bromine, 0.5 gram. suffices. A number of tables of results of experiments on tallow, olive oil, rape oil, and raw linseed oil, accompany the papers all showing the close approximation of the results obtained by the Bromine and the Hübl methods.

Mr. Otto Hehner, commented on Mr. Archbutt's results. He was careful to point out that neither by this, nor by the Hübl process, could the adulterants in fats be identified. All that could be said was that, if a certain fat gave abnormal values with the test, these values indicated some adulteration, and other considerations would have to be taken into account in deciding what the adulterant was.

A discussion followed in which Professor Clowes and Dr. Sudborough, Messrs. Lott, Wood, Caven, and Kempson took part; the meeting terminating with a vote of thanks to Messrs. Archbutt and Hehner, which was carried unanimously.

PROFIT-SHARING IN THE ENGINEERING INDUSTRY.

SIR W. G. ARMSTRONG, WHITWORTH, AND CO., LTD., have issued to the press particulars of a scheme to allow their employees to invest their savings in the Company, with a view to their sharing in the profits. This scheme, which will come into operation on April 1st, has been approved by the Board of Directors. The conditions are as follow:—

Deposits of not less than 1s. and not more than £1. of the depositor's weekly wages will be received from persons in the employ of the company each week. Those employees who are paid quarterly will be allowed to deposit up to £2 weekly. For each individual the amount of such deposits shall not exceed £200 in the case of employees receiving weekly wages, and £400, in the case of employees receiving quarterly wages. Interest will be allowed on such deposits at the fixed rate of 4 per cent. per annum, payable half-yearly, and in addition a bonus will be paid on declaration of the dividend at the rate per annum of half the difference between the fixed rate of 4 per cent. and the dividend. Sums that have been deposited with the company for a less period than three months prior to the 30th June next preceding the declaration of the annual dividend will not be entitled to the bonus; sums that have been deposited for a period longer than three months, but less than twelve months, prior to the 30th June in any year will receive a proportionate amount of the bonus. The bonus will be credited to each depositor should he so desire it, and will be added to the principal due to him as and from the date of payment.

Deposits withdrawn will be entitled to interest at the rate of 4 per cent. per annum from 30th June last preceding up to the date of repayment of the deposit, but no interest or bonus will be allowed on sums of less than 10s. or in respect of any period being a fraction of a calendar month. The conditions as to repayments withdrawal are as follow:—Up to one-half on seven days' notice; the whole on fourteen days' notice. Under special circumstances the company will allow deposits to be withdrawn without notice. Persons leaving the employ of the company will be repaid their deposits, with interest, at the expiration of fourteen days in Newcastle.

This scheme has been awaited with much interest, as for some few years the general suggestion of such an arrangement has been looked forward to as a leading factor in the prevention of the eternally recurring trade disputes.

FRANCE AND AMERICAN OILS.—A meeting of masters and workmen in the oil refineries and allied industries, was held recently at the Marseilles Labour Exchange to protest against the flooding of the European market with American oils. A resolution was passed in favour of a protective tariff in order to enable independent refiners to compete with the powerful American syndicate, which includes 60 oil refineries, and also possesses immense cotton plantations.

COKE OVENS STOPPED.—The dispute at Frimdon Grange and Kellie Collieries still continues. Four hundred of the men are to be summoned for damages in stopping one of the pits without giving proper notice to cease work. About three thousand men are idle in consequence of the strike. At the pits one hundred coke-ovens have had to be put out, and a number of coke-burners have been paid off pending a return of the miners to work.

Reports of Companies.

THE CASTNER-KELLNER ALKALI COMPANY, LIMITED.

THE first annual ordinary general meeting of the shareholders of this company was held at the Cannon-street Hotel, London, on Monday this week. Mr. W. Mather, the chairman, presided, and the other directors present were Sir Henry Roscoe, Mr. F. Hardcastle, and Mr. F. Burton.

The directors' report stated that the hopes expressed by the chairman at the statutory meeting in February of last year had been realised. The installation for 1,000 h.p. had been practically completed, the few finishing touches required being of such a nature as not to interfere with the operation of the plant, and a portion of the plant had been recently put into work with results, both as regards the plant and the products, which had been found satisfactory, and as anticipated. The working of the plant was now being continued, and would be extended rapidly and concurrently with the training of the necessary staff of workpeople, and in a short time the products of the first installation of 1,000 h.p. plant would be ready for the market. The buildings which had been erected covered an area of upwards of $2\frac{1}{4}$ acres. The total expenditure to the date of this report on the erection of the works and of the first installation of 1,000 h.p. had been £70,000, exclusive of the cost of the freehold land, consisting of about 46 acres, for which £5,500 was paid. In addition to this expenditure the directors determined last autumn to incur a further outlay on a second installation of 1,000 h.p., in consequence of the information supplied to them from one of their allied companies that the Castner-Kellner process was capable of realising even greater results in the production of caustic potash than of caustic soda. In order to test this statement Mr. Castner was requested to produce caustic potash by means of the plant he used at Oldbury for the production of caustic soda. The results were so satisfactory that the directors felt justified in proceeding at once with the erection of a second installation, in order to reap as quickly as possible the advantage offered by a product capable of being made with a 1,000 h.p. plant in a larger quantity and of greater value per ton than caustic soda, but this second installation could be used equally well for caustic soda if the expectations as regards caustic potash were not realised. A large portion of the buildings for the second installation were erected, and it was expected that this would be at work this year. The report added that their allies, the Solvay Werke, of Germany, had been pushing forward their works, which were arranged on exactly the same plan as those of the Castner-Kellner Company, with the utmost speed, and it was expected that they would follow the latter company closely in commencing operations. The Mathieson Alkali Company, of America, were also making rapid progress with the erection of the works at Niagara Falls for 2,000 h.p. plant.

The chairman, in moving the adoption of the report, stated that a year ago he held out the anticipation that they would now be able to testify to the value of the product obtained from this new electrolytic process of producing caustic and bleaching powder. A portion of their works had been in operation for two or three weeks, and it was satisfactory to state that the first sample of their product, which they sent to the analysts in Liverpool to undergo what was called the Liverpool test, ranged higher than perhaps had ever been known in the history of the alkali trade. Many doubts had been expressed, of course, by those who did not wish them to succeed, that the company would not be able, on the manufacturing scale, to produce caustic soda ranging between 78 and 79 per cent., Liverpool test; but the very first sample they produced, from what he might call the preliminary run of their cells, had given caustic soda ranging between 78 and 79 per cent. strength. In a short time they expected to get the full number of cells at work. They would then accumulate a certain amount of caustic soda and bleaching powder, and when they had a sufficient stock they would authorise their brokers to go on the market. The shareholders, however, might be quite sure that the directors, several of whom were intimately acquainted with great manufacturing industries, did not intend to commit the great mistake of rushing to the front before every detail in connection with the works had been tested and tried to the utmost, so that when they began there would be no probability of their having to arrest their progress. He might say that in all his experience, having had to do with the construction of very large works, in which engineering problems and also some chemical problems were involved, he had never known the first start of an enterprise to be so eminently satisfactory as had been the case with regard to this Company's works at Runcorn.

Those of them on the Board who knew the many unforeseen obstacles that occurred in starting a large industry were astonished at the freedom from hitches of any kind. The plant had responded to the demands made upon it, and the whole design and scheme of the works had proved amply satisfactory. The whole of the electric plant and every device in connection with it had answered most fully to the anticipations

they had formed and the preparations they had made. They had several subsidiary operations in connection with the works. The Castner-Kellner process began and ended with the decomposition of the brine into two elements, one being chlorine gas and the other caustic soda. Caustic soda was produced in a liquid form, and had to undergo a process of concentration. If they could use the product in a liquid form—if, for instance, they had soapworks alongside of them—they could effect a great saving. They had no soapworks near at present, but some enterprising people had been looking at the land adjoining their premises, and had spoken hopefully of establishing soapworks there some day. The chlorine gas was converted into bleaching powder. This was an extremely crude operation, involving the building of large chambers and a considerable amount of labour, but the alkali manufacturers of this and other countries appeared to be satisfied with it. These two processes were not part of the patented process proper. Then they had found it important to enlarge their ideas as to the preparation of the brine. They had hoped to get it from the Salt Union of sufficient purity for their processes. This brine, though occupying the highest place in the market, was not, however, as pure as they required, and they had determined to put down purifying plant of their own. He would like to say that the directors had not endeavoured in any way to economise in building or in preparing their plant, but had sought to have both of the highest possible character, from the point of view of protecting the workpeople from every sort of danger. They desired to make the industry one that was popular, and one that was perfectly harmless. The directors had shown the utmost consideration for their workpeople by preparing for them such conveniences for their clothing, etc., as might be required, and by providing large sheds and rooms in which they would work, with a view to the best sanitary conditions possible, so as to prevent every kind of ill-effect from the carrying out of their operations. He need not say that no profit in the world could be, or ought to be, acceptable to any right-minded man that was earned at the expense of the well being of any other man. They had introduced another improvement. Their works were situated in a rural part of the country. They saw the fearful shroud overhanging the district known as Widnes, and were cognisant of the prevailing odours which sprang from the escape of chlorine and other gases. They had from the first endeavoured to make their works harmless as regards vegetation and as regards interfering with the convenience of any of the residents in their neighbourhood. A certain expense had been incurred in absorbing those gases which otherwise were always sent up the chimney and spread far and wide. With regard to the expenditure incurred on the works, the directors had come to the conclusion that this industry had come to stay, and they had decided to lay the foundation in a substantial way. They had therefore erected durable buildings, and the plant and machinery was all they could desire. By the autumn of this year they hoped to have the second installation at work. They would use it, not for caustic soda, but for caustic potash, having evidence that the plant would in the same time produce 30 or 40 per cent. more of the latter article than of the former, and caustic potash had a very much higher price in the market. The subsequent installations would be much less costly than the first had been, and they hoped also to effect some economy by taking advantage of some improvements likely to be made in connection with the treatment for the production of bleaching powder. The cost of subsequent installations depended upon the rate at which they could undertake the work, and his own opinion was that the third and fourth installations ought to be begun immediately, so that the enterprise might be completed as soon as might be. In developing the industry they would probably require to use their credit by-and-by, but, whatever capital they might have to raise by debentures would be raised on a property having a very high value in the market, and he anticipated no difficulty in this respect. So far as he could speak from the short experience they had had of the working of the enterprise, nothing had occurred to shake the high expectations he held out a year ago. The directors had up to now fulfilled the task they undertook, and if they were equally successful in the future the shareholders would have no cause for dissatisfaction.

Mr. F. Hardcastle, who seconded the resolution, said he had made a very close examination of the accounts, at the request of the chairman. The company had been very much in the hands of Messrs. Mather and Platt, who had purchased a great many things for them upon terms much more favourable than the company could have got for themselves, and had done much for them without any charge at all. The company was exceedingly indebted to Messrs. Mather and Platt. The preliminary expenses, apart from stamp duty, were only £260.

The motion for the adoption of the report was carried.

The chairman next moved that the financial year should end on the 31st of March. He explained that this change was proposed with the object of securing the presence at the annual meeting of the managing director, Mr. Castner, whose health obliged him to spend the winter months in Florida.

Sir Henry Roscoe seconded the motion. Speaking of the development of the operations, he mentioned that, although Mr. Mather had been laid up with a very serious accident, his attention to the work

remitting. The work had been admirably done, and they sent a shilling more than was necessary. This was going to business, and therefore they had determined to put up as had never been erected for chemical purposes in England before. They had been able to show a sample of their product not only was it better than anything that had been put out before, but it was an absolutely pure chemical article; caustic soda manufactured by the ordinary process, though up to the strength of their sample, was not equal in purity, the caustic soda manufactured by their process there was not at all, while in that produced by other processes there was a certain amount of this impurity. With regard to the use of bleaching powder, it was true that the chambers cost them a great deal and that the process was an old one, the only process known at present, and they were, therefore, adopting it. The chambers had been put up in the best style, the finest in the country.

It was suggested that, as some fifteen months would elapse next meeting, an interim report on the progress of the work made.

Mr. Man assented.

It was then agreed to.

At the meeting of Liverpool, in moving that a sum of £500 should be paid to the directors' fees, bore testimony to the general excellence of the works.

It was seconded, and the motion was agreed to.

Mr. Burton and Castner were re-elected directors, and the proposed with a vote of thanks to the chairman, who mentioned that he just received an intimation that the products of their chambers had been tested that day, and found to contain available chlorine.

RHEA FIBRE TREATMENT, LTD.

At the meeting of the directors for the financial year ended December 31st, that the operations of the directors during the year are under the following headings:—Supplies and disposal of raw material, acquisition of works for manufacture, disposal of production, and of licenses. In addition to the contract for supplies from the works mentioned in the previous report, the directors have during the year devoted their attention to obtaining supplies of rhea ribbons through other sources, and in this connection they have entered into a contract with a London firm, appointing them exclusive collectors of supplies from the presidency of Bengal; similar contracts have been made with another firm for the State of

The demonstration works at East-row, Kensal-road, were completed in November, 1895. The directors have it necessary from time to time to make further extensions pending the erection of filasse-producing works on an extensive and on an enlarged scale. The directors, after the fullest inquiry, and placing a wide range of samples upon the market, are satisfied—their opinion being confirmed by the agents in Manchester (Mr. A. A. Moss)—that there is a very large market for yarns made from rhea fibre produced under the process. In June last, the directors having completed the purchase of the Castleton Mill, a company was formed, under the title of the Rochdale Rhea Fibre Spinning Company, Limited, with the view of acquiring this property and manufacturing filasse, spinning it and demonstrating the many uses to which rhea yarns can be put. The Rochdale Rhea Fibre Spinning Company, Limited, pays any royalty on all its productions. In addition to the purchase of the Rochdale Company, the directors have opened up negotiations with a manufacturer in the West of England in connection with the trade, with a Belfast manufacturer for the damask trade, and with a Yorkshire firm with a view to the material being used in the manufacture of goods. Other negotiations of a similar nature—which have not advanced so far as the above—should ultimately result in a large number of manufacturers becoming licensees to the company. The authorised capital of the company is £130,000, of which £117,919 has been issued to date £107,919. The sum due to the directors for unpaid fees, and there is due to the directors for unpaid fees, the whole indebtedness amounting to £2,744. The sum of £117,919 is set aside for the erection of filasse-producing plant, buildings, and the like. The premium on shares carried to reserve, £4,549, is the amount of premium received in respect to shares issued during the year. It is proposed to devote this sum and any premiums on future issues to the reduction of the book value of the securities in hand amounting to £149,895. The cash in hand, and the amount now in dividend would cripple the company's operations. The directors, however, intend to pay an interim dividend as soon as some of the securities are realised.

DIVIDENDS.

THARSIS SULPHUR AND COPPER COMPANY, LIMITED.—The directors have recommended a dividend of 17½ per cent., equal to 7s. 6d. per share, payable free of income tax from the profits of the year 1896, after writing off £38,395. The sum of £15,708 is carried forward to 1897. For the previous year the dividend was also 17½ per cent., after writing off £58,247, and carrying forward a balance of £15,689.

THE BRITISH ALUMINIUM COMPANY, LIMITED.—The report for the year ended December 31 shows a profit of £5,744, which, with £1,123 brought forward, makes a total of £6,867. The directors recommend the payment of 7 per cent. on the preference shares up to January 1, 1896.

GERMAN CHEMICAL DIVIDENDS.

THE chemical works formerly Moritz, Milch and Co., at Posen, will pay a dividend of 9 per cent. on the ordinary shares for 1895-96. In the year before the dividend was 6 per cent. The share capital of the Consolidated Chemical Works at Altenburg has been increased from 400,000m. to 500,000m. by the issue of 100 preference shares of 1,000m. each. The proprietors of the chemical factory, Maithal, announce that their chemical business has been transferred to the chemical factory, Griesheim, Frankfurt-on-Main. It is unofficially announced that the chemical works at Biebrich-on-Rhine, formerly Albert and Co., will pay a dividend of 6 per cent. for 1896. The second business year of the medical stores, a kind of co-operative concern for the supply of medical and pharmaceutical goods at Berlin, has again resulted in a loss. The loss for 1896 amounts to 46,301m., making a total for the two years of 111,003m. A firm has been entered upon the German chemical register, under the name of the Elektrochemische Werke, Rheinfelden, with a capital of 3,000,000m., for the electrolytic production of sodium and potash salts. A factory will be built at Rheinfelden, and the managing directorship will be in the hands of Dr. Walther Rathenau and Mr. W. Schroers.

MOTOR VEHICLES FOR ROADS.

AT a meeting of the Manchester Association of Engineers, held at the Grand Hotel on Saturday evening last, Mr. Joseph Nasmith presiding, a paper on "Motor vehicles for roads" was read by Mr. W. Worby Beaumont (London). He dealt at the outset with some of the chief features of the boilers, engines, and fuel consumption of the coaches sixty-five years ago, by Hancock, Hill, Gurney, and others, and discussed, with reference to modern vehicles, the relative advantages of steam, oil, spirit, and electricity as means of propulsion. As compared with the men of sixty years ago, we had advantages, he said, which, in many respects, were of the greatest importance, and which ought to enable us to accomplish with ease and certainty that which they left unfinished. In particular, we had the advantage of the materials and tools which made it possible to run engines continuously at three times the number of revolutions they could use, and at double the piston-speed. We had, moreover, materials at our disposal which enabled us to reduce the weight of our motor machinery by probably 70 per cent. as compared with theirs. We had steel-sheet tubes of all sizes and splendid quality, steel castings, drop forgings, and many other such things; we had ball bearings and rubber tyres, and we had aluminium alloys, which placed in our hands materials for motor parts and frames, water and oil tubes, connecting pieces, and many other things of half the weight of anything then or at present made of either cast-iron, bronze, or gun-metal. Aluminium alloys for castings were now made of specific gravity very slightly over 3.0, and, therefore, of considerably less than half that of cast-iron, and of much higher strength. Tests made at the Durham College of Science, Newcastle, of aluminium alloy-castings from Mill's Atlas Works, Sunderland, of 3.05 specific gravity, had given a tensile strength of as much as 20 tons per square inch, with an elongation of 1.25 per cent., and another alloy used for castings of bed-plates and standards for engines and dynamos, brackets, gear-wheels, and other parts had a tensile strength of 15 tons per square inch, and with a specific gravity of only 2.98. The immense advantages such a material offered in the construction of motor-carriages and motor-cycles would be readily seen, and [should help to remove considerable difficulties. Compressed air for motor-vehicle purposes was again being much spoken of. There could be no doubt as to the manipulative excellence and cleanness of compressed air for motor purposes. With a good supply of compressed air, a motor could be worked with all the ease of a steam engine or electric motor for any power within its maximum. It must, however, remain a more expensive power than steam, oil, or gas, and probably would not, under any circumstances, cost much less than from 1.25d. to 2d. per horse-power per hour, and in some cases would cost more when compared with

steam at a useful pressure, such as 180 lb. per square inch. It would take about twice the volume of steam for the volume of air at the same pressure produced. The receivers for the air for vehicles for even short distances weighed from one-third to one-fourth the whole weight moved, and for distances of, say, 20 miles, the air and receivers would approach in weight half the total moved. With means of heating the air the conditions were improved, but with an increase in the number of parts.

COMPRESSED GAS

commended itself very much more favourably and was not unlikely to be hereafter of great importance in this connection. Four cubic feet of ordinary coal gas, at a pressure of say 110 lbs. per square inch would represent the heat equivalent of four horse-power hour, or about one horse-power hour by a gas engine. This was at least ten times greater than the power a similar quantity of air would give at the same pressure, an excess so great that its superiority was incontestable. The one disadvantage of the gas-motor as compared with the air was the difficulty of starting it, and, as at present made the necessity for keeping it running light, while the vehicle made short stops. There was, however, little objection to this in the case of tradesmen's vans and many other vehicles, and it did not cause any trouble with the gas-driven trams as used so successfully and exceedingly economically at Blackpool, Lytham, and St. Annes tramway, on the Gas Traction Company's system, and as equally successfully at work on the Dessau and Dresden tramways. The system had the advantage that the motor could get its working fluid in every town and every village of any size, and the motor vehicle could be provided with a pump by which it could fill its own receivers while the users went to lunch or dinner.

Trade Notes.

THE CHESHIRE ALKALI CO.—The arrangements for taking over by Messrs. Brunner, Mond, and Co. of the undertaking of the Cheshire Alkali and Salt Company at Middlewich are almost complete. The company has paid £45,000 for the works, which will be improved and developed. In consequence of the change of ownership there has been a pronounced revival in the Middlewich trade and it is expected that employment will be found for an increased number of men.

PAPER MILLS DESTROYED.—A serious fire occurred last week at the Turkey Paper Mills Bersham, near Wrexham, belonging to Messrs. H. M. Greville and Son. The buildings and contents were completely destroyed, the damage being variously estimated at from £12,000. to £20,000. These mills had long been famous for the manufacture of expensive hand-made papers, and the papers on which some portion of the Bank of England notes are printed.

SOCIETY OF CHEMICAL INDUSTRY: London Section.—The next meeting will be held in the Chemical Society's Rooms, Burlington House, on Monday April 5th, at 8 p.m. Business:—Election of officers and five members of committee for the session 1897-98; the following paper will also be read by Oscar Guttman, Assoc. M. Inst. C.E.:—“The chemical stability of nitro-compound explosives.”

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—The annual general meeting of this section will be held in the Chemical Laboratories, University College, on Wednesday, April 7th, 1897, at 7-30 p.m. Business:—(1) Consideration of proposed alteration in rules relating to days of meeting. (2) Election of officers. (3) Paper on “The manufacture and industrial uses of Persulphates,” by Doctor Hugh Marshall.

MAGNOLIA v ATLAS METAL CO.—The appeal of the Magnolia Metal Co. against the decision of Mr. Justice Collins (*C.T.J.* 497, p. 338) granting an injunction in favour of the respondents was heard in the Appeal Court this week and dismissed by the Master of the Rolls. Reviewing the facts and the trial his Lordship said he thought the appeal wholly and entirely failed, and that the decision below could not be disturbed. The respondents had a right to make the metal, if they chose, so long as they made it plain that what they made and sold was not of the manufacture of the appellants.

PERSONAL.—The London County Council has accepted with regret the resignation of Mr. W. J. Dibdin, chemist and superintending gas examiner. A suggestion that an endeavour should be made to retain Mr. Dibdin's services was withdrawn on it being explained that the only reason for his resigning the position was his desire to engage in private practice, which was against the rules of the Council. Mr. Dibdin has held the position of chemist and superintending gas examiner since 1884, and for some years prior to that he was engaged in the same department in a subordinate position. His first assistant has also retired with him.

SUGAR MAKING IN PERSIA.—Beetroot sugar is now being manufactured in Persia, a Belgian company, which for the last two years has been erecting a magnificent factory on the newest principles, electric motors, having begun work recently. Another company started a glass factory, which is also at work.

CHANGES OF ADDRESS.—Messrs. Easton, Anderson, and Goss Limited, having disposed of their premises in Whitehall Place, London address is now Broad Sanctuary Chambers Messrs. J. Bros. and Co., dealers in linens, wipers, and polishers for printers lithographers, have removed from Bunhill Row, E.C., to Charlton Place, Islington Green, N., opposite the Agricultural Hall.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this case.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products as a whole are firm. Benzols are perhaps the weakest, prices are nominal and unchanged, with 90's at 2s. 6½d., 2s. 7d., and 50/90's 2s. 4½d. Carbolic acids are strong at 2s. 6d. 60% crude, and 8d. for 40% crystals. Liquid, 95/97%, 1s. 1d. Nap are steady at 1s. 1d. for crude and 1s. 8d. for solvent. Pitch is steady at 21s. to 23s. 6d., f.o.b., East Coast. Creosote and anthracene are unchanged.

Sulphate of ammonia is easier. Buyers are scarce and orders are still. The weather also does not improve the prospect. Prices prompt are:—Beckton, £7. 12s. 6d., London outside makes £7. 17s. 6d., Hull £7. 17s. 6d., and Leith £7. 17s. 6d. to £7. 16s. 3d.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there has been somewhat more activity, partly to American demand for early shipment. Otherwise, prices remain steady all round, and the home market is quiet. Caustic soda is unchanged, at prices which have been ruling for some time past. F.o.b. Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d., nett, 10-ton lots. Ammonia alkali firm at advance, £3. 17s. 6d., and soda crystals at 47s. 6d., bags. Bleaching powder in good request at £6. 10s. per ton, f.o.b., £6. 10s. to £6. 15s., hardwoods, f.o.b. Liverpool, Tyn. Chlorates very irregular, potash at 4½d., and soda 4½d. to 5d. Forward sellers are quoting lower rates. Sulphur firm at £4. 12s. to £4. 15s. f.o.b. Saltcake in better request for export at 19s. 10d. per ton f.o.b. makers' works, in bulk. Sulphate of copper lower at £17. 15s. f.o.b. White powdered arsenic, £24. Garston. Brown acetate of lime is held firm at the advance, and quoted at £5, c.i.f. U.K. ports. Other acetates slightly firm sympathy. Carbolic acid, liquid and crystals, are in better demand and prices are firm. Aniline oil and salt are obtainable on the easier terms; nominal quotations are 8d. and 7½d. per lb. respectively. Nitrate of soda, 7s. 10½d. to 8s. for spot delivery. Yellow prussiate weak at 5¼d. to 5d. per lb. Cyanide, 11d. Potash, caustic carbonate, are in good general request, and prices are well maintained for best grades of quality. Bichrome unchanged. Oxalic acid, per lb. Zinc chloride depressed owing to smaller local demand. Chemicals for cotton sizing are also in similar position from the cause. Generally, business with dyers, calico printers, etc., is quiet, and, on the whole, there is no improvement in value of principal commodities used in these branches of trade.

REPORT ON MANURE MATERIAL.

The market has continued quiet, and there has been no special to comment upon. Quotation for mineral phosphates remains as reported. £3. 12s. 6d. is probably nearest value of River Plate

at. There has been no business reported during the week. Sellers of fine Bombay bone meal at £3. 15s. per ton, ex 13s. 9d. would be accepted, ordinary quality, ex store, is quiet on spot at 8s. for good, up to 8s. 3d. for refined cargoes are worth about 8s. to 8s. 1d. per cwt., according to test.

THE METAL MARKETS.

1, WEDNESDAY.—Pig iron quiet: Scotch warrants closed at Middlesbrough 39s. 10d. cash, and hematite 47s. 7d. dy: Chili bars, G. O. B.'s and G. M. B.'s, closed at 48s. 2s. 5d. cash, and £49. 6s. 3d. to £49. 11s. 3d. Tin steady: Straits closed at £59. 2s. 6d. to 60d. cash, and £59. 15s. to £60. 5s. three months; £60. 10s.; English ingots, £63. 10s. Lead: Spanish, £11. 12s. 6d.; English, £11. 15s. Silesian spelter, 7s. 2s. 6d. to £17 3s. 9d. Nickel, 1s. 2½d. Antimony, silver: First hands, £7. 5s.; second hands, £7. 4s. 2s. dull: Cape, 2½ to 2½; Copiapo, 1½ to 2½; 2½; Mason and Barry, 2½ to 2½; Rio Tinto, 25½ to 25½ to 25½ to 6.

W, WEDNESDAY.—Market flat, with a fair business. at 44s. 6½d. to 44s. 6d. cash and 44s. 9d. to 44s. 8½d. one 44s. 6d. cash; sellers, ½d. higher. Cleveland done 6d. cash; buyers, 39s. 10d. cash; sellers, 39s. 11d. hematite done at 47s. 8d. to 47s. 7d. cash and 47s. 10½d. buyers 47s. 7d. cash; sellers, 47s. 8d. Middlesbrough at 48s. 11d. cash; buyers, 48s. 9½d. cash; sellers,

PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The markets continue inactive, with very little of importance. Linseed oil is again lower, and cotton oil remains very quiet. To date, compared during the same time a year ago, have sold, 121,549 quarters, against 151,455 quarters; rapeseed, 118,727 quarters; cottonseed, 65,871 tons, against 15,727 tons; oilcake, 2,372 tons, against 4,309 tons; olive oil, against 1,817 tons. Linseed oil is lower, and dull thereat: 4½d., sellers; forward April, 12s. 7½d.; May-August, 12s. 8d.; last four months, 13s. 9d. Boiled and refined £1. to 10s. extra. Refined cotton oil quiet: Spot, naked, sellers, forward April, 12s. 10½d.; May-August, 13s. 3d. Casks 1. 10s. extra for barrels. Filtered refined is quoted about 10s. extra. Olive oil remains unchanged, £31. 10s. being the price for Candia. Castor oil firm: 3½d. per lb. is quoted for the Calcutta, and 3d. to 3¼d. for French make. Cod oil, 8s. per ton. Oleines unchanged. Yorkshire grease, £8. to 10s.

—Linseed cakes steady, owing to the dull oil market: 66. 12s. 6d. Oilcakes, £5 12s. 6d. per ton; Americans, 1. per ton. Cotton cakes quiet: Best makes, £3. 15s. to 3d.; seconds, £3. 12s. 6d. to £3. 13s. 9d. Rape cakes: £3 12s. 6d. per ton.

—Makers continue busy, with a few good report inquiries about. White and red leads unchanged. Dry mineral oil, to £8. per ton. Assorted ordinary coloured paints from 1s. upwards. Ready mixed, £24. to £26. per ton. Imperial ash, £5. 10s. per ton. Paint remover, from 25s. per cwt. to 5s. 6d. per gallon. Enamels, 4s. 6d. and 8s. 6d. per dozen.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil is firm, and sales have been made in Lagos at £20 15s., Cameroon £19. 7s. 6d., and soft oils £19 10s. steady; there have been sales of Malaga at £31. and Seville at 31. per tun, according to quality. Linseed is rather dull, but the market is inclined to steadiness at 14s. 9d. to 16s. per cwt. for Liverpool refined. Castor oil is steady, but slow sellers are still asking 2½d. for good seconds Calcutta and assure French. Tallow is firm, but moves slowly. Resin is quiet, but the old rates still hold good. Spirits of turpentine is fairly well at the old figure of 21s. 3d. per cwt. Petroleum prices being 5½d. to 7d. for American, and 5¼d. to 5½d. for Russian refined.

URS.—Prices are steady, and practically without change. Oxfordshire, common, £10., medium, £12., best, £15,

Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 90s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 65s. Umber 40s. to 45s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia during the week has continued on its resumed downward way, and the price now for the stiffest of sellers is no more than £8. f.o.b. Leith, for prompt. But some sellers have taken less, and it is rumoured that £7. 17s. 6d. has been accepted. This is not unlikely, but so far the report has not been fully confirmed. There has been nothing moving on the forward basis. The weather is still dead against any briskness in this section of the market. Common chemicals are likewise very slow of movement, and the new season's Baltic ports requirements are not as yet having much outward effect. Quotations have gone up in obedience to the decision of the English makers, but the upward movement presents itself in rather an irregular form. Some authorities still give the old figures. In mineral oils the call for consumption is nearly extinct for the season, so far as burning oils are concerned. Lubricants are still active. Solid paraffins continue idle. Prices nominally as before.

Chief prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, soda ash, 48/62°, £4. 2s. 6d. to £4. 10s. nett, Tyne; white alkali, 48/52°, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, £17. 10s., and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5¼d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 3d.; sulphate of ammonia, £7. 17s. 6d. to £8 prompt, f.o.b. Leith; sal ammoniac, first and second white, £35. and £33. nett. any port; sulphate of copper, £18. 10s., less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 6½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 86° £5. to £5. 5s., 88° £5. 15s. to £6. 5s., and 89°/89½° £6. 10s. to £7. Week's imports of sugar at Greenock were 5,535 bags beet unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals show a little more demand without alteration in prices from last advice. Soda crystals, £2. 12s. 6d. per ton, gross weight, locally; 76/77% caustic, £9. 70% £7. 10s. per ton. Sulphur still scarce at £5. per ton. Other products unchanged.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett; do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady, at 9s. per ton f.o.b. Tees.

COALS.—Trade is perhaps a shade firmer in anticipation of the opening out of the Baltic ports. Coke continues steady at 15s. and 16s. per ton. To-day's quotations are: Best Northumbrian steam, 8s. to 8s. 3d. per ton; second quality, 7s. to 7s. 3d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton. Gas coals, weaker, 7s. 6d. to 8s. od. per ton. Bunker coals, quiet, 7s. 3d. to 8s. per ton. Household coals, 10s. to 11s. per ton. Coke, 15s. to 16s. per ton.

New Companies.

Needhams, Ltd.—CAPITAL, £30,000. in £1. shares, of which 20,000 are £6. per cent. cum preference. This company has been formed to take over the business of wholesale chemists and drug merchants. Registered office: Buxton-road, Huddersfield.

Edward Ryan & Co., Ltd.—CAPITAL, £24,000. in 2,400 preference shares of £5. each and 240 £50. ordinary shares. This company has been formed to carry on the business of candle, soap, etc., manufacturers. Registered office: Grays-lane, Pope's Quay, Cork. The subscribers to the memorandum of association are:—E. Ryan, Blackrock, Cork, merchant; J. Keelcher, Sunday's Well, Cork, merchant; D. G. Daly, Blackrock, Cork, merchant; W. B. Harrington, Leevue, Cork, merchant; M. J. Stapleton, Sunday's Well, Cork, merchant; J. Ogilvie, Warren's-place, Cork, merchant; S. H. Newsom, 41, Patrick-street, Cork, merchant.

Frederick Smith & Co., Wire Manufacturers, Ltd.—CAPITAL, £100,000. in £10. shares. This company has been formed to acquire

the business carried on at Caledonia Works, Halifax, and to patent galvanisers, wire-makers, copper-smelters, etc. The subscribers to the memorandum of association are:—G. H. Smith, The Gl. Halifax, wire manufacturer; Mrs. H. S. F. Smith, The Gl. Halifax; F. Smith, The Grange, Light Cliffe, Halifax, wire manufacturer; Mrs. F. Smith, The Grange, Light Cliffe, Halifax; Dearborn, 5, Park-terrace, Halifax, cashier; S. W. Greenwell, Savile-park, Halifax, clerk; J. E. Cox, 134, Gibbet-street, clerk.

W. J. Bush & Co., Ltd.—CAPITAL, £250,000. in 125,000 of £1. and 25,000 £5. preference shares. This company has been formed to acquire the business of W. J. Bush and Co., and to manufacture chemists, oil refiners, distillers, etc. The subscribers to the memorandum of association are:—Baron de Bush, Artillery Bishops-gate, manufacturing chemist; J. M. Bush, Artillery Bishops-gate, manufacturing chemist; A. W. Bush, Artillery Bishops-gate, manufacturing chemist; A. Bush, Artillery-lane, manufacturing chemist; C. S. Taylor, 224, Evering-road, manager; M. R. Webb, J.P., 11, Kensington-court, W. Webb, Farquhar-road, Upper Norwood, gent.

IMPORTS OF CHEMICAL PRODUCTS

AT
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 20th.

Acetic Acid —		
Holland, 52 pks.	A. & M. Zimmermann	
Acetone —		
Holland, 1 dm.	G. Rahn & Co.	
Alum —		
Holland, 238 pks.	Ohlenschlager Bros.	
Antimony —		
Australia, 13 t.	L. W. Greenbough & Son	
" 5	Owran Younger & Co.	
Asbestos —		
Germany, £40	Craven & Co.	
Barytes —		
Holland, 20 cks.	S. Barrow & Bro.	
Belgium, 166 200 bgs.	J. L. Lyon & Co.	
" 33 brls.	O'Hara & Hoar	
" 300	Burrell & Co.	
Germany, 23 cks.	W. Harrison & Co.	
Holland, 121	W. Harrison & Co.	
" 5	H. Keller & Co.	
" 20	J. L. Lyon & Co.	
" 49	O'Hara & Hoar	
" 263 T. & W. Farmiloe		
Belgium, 120	W. Harrison & Co.	
Bleaching Soda —		
Germany, 200 cks.	H. Lambert	
Bromide of Iron —		
Germany, 15 cks.	A. & M. Zimmermann	
Bromine —		
Germany, 20 cks.	A. & M. Zimmermann	
Camphor —		
Germany, 2 cks.	T. H. Lee	
Caoutchouc —		
France, 12 c.	H. Johnson & Sons	
Zanzibar, 25	L. & I. D. Jt. Co.	
Holland, 12	Anderson, Weber & Co.	
Madagascar, 1	Procter Bros.	
Rangoon, 5	Prop. Hay's Wf.	
U.S. Col., 23	Stiebel Bros.	
Madagascar, 5	S. Figgis & Co.	
Carbolic Acid —		
Germany, 50 cks.	J. G. Back	
Castor Oil —		
E. Indies, 50 cks.	Perking & Homer	
Italy, 10	City Coml. Wf. Ld.	
Caustic Potash —		
France, 12 dms.	W. E. Cole	
" 12	F. W. Berks & Co.	
Caustic Soda —		
Germany, 1 cks.	W. J. Crook	
Chemicals (otherwise undeciphered)		
Germany, £50	R. W. Greff & Co.	
Holland, 55	T. H. Lee	
" 33	G. Rahn & Co.	
Germany, 15	L. & I. D. Jt. Co.	
U. States, 60	W. Wingate & Co.	
Belgium, 135	Société John Cockerill	
" 21	O. Scholzig	

Germany, 236	T. H. Lee	
" 1,084	A. & M. Zimmermann	
" 500	H. Lambert	
Denmark, 8	D. Currie & Co.	
" 68	Bailey & Leatham	
Holland, 12	J. Owen	
" 5	H. Lorens	
Australia, 109 t.	Austrln. Alum Co.	
Cobalt Ore —		
N. Caledonia, 150 t.	R. Waters	
Copper Sulphate —		
France, 2 cks.	Foraood Bros. & Co.	
Copperas —		
Holland, 3 cks.	A. & M. Zimmermann	
Cream of Tartar —		
Spain, 10 brls.	E. & T. Pink	
" 52 cks.	B. & F. Wf. Co.	
" 20	W. C. Bacon & Co.	
" 10	G. Boor & Co.	
France, 5	W. C. Bacon & Co.	
Dextrine —		
Germany, 50 bgs.	J. Barber & Co.	
" 4	M. D. Co.	
Dyestuffs —		
Argols		
Portugal, 10 bgs.	L. & I. D. Jt. Co.	
Italy, 301	B. Jacob & Sons	
" 23 cks.	Thames S. T. & L. C.	
Cochineal		
U. States, 7 bgs.	W. Thatcher	
Cutch		
Rangoon, 2,730 bxs	A. Howden & Co.	
" 1,000 cks.	W. A. Smith & Co.	
Ceylon, 300	Cayzer, Irvine & Co.	
Rangoon, 1,250 bxs	Leach & Co.	
" 200	Brown & Elmslie	
Extracts		
France, 10 cks.	T. H. Lee	
Denmark, 1 ck.	M. D. Co.	
Germany, 1 100 bgs.	T. H. Lee	
Denmark, 1 cks.	Bailey & Leatham	
France, 80 cks.	S. M. Frankenstein & Co.	
U. States, 23 cks.	Van Oppen & Co.	
Denmark, 2	D. Currie & Co.	
Fustic		
B. W. I., 12 t.	S. Dobree & Sons	
Gambler		
Singapore, 126 bgs.	G. R. Haller	
" 209 bgs.	Brinkmann & Co.	
Indigo		
E. Indies, 16 chta.	A. B. Curtis & Co.	
" 47	R. Von Glehn & Sons	
" 5	Blythe, Greene & Co.	
" 147	Croysdale & Co.	
" 4	F. Huth & Co.	
" 50	Ross & Deering	
" 27	W. Balchin	
" 34	Arbuthnot, Latham & Co.	
" 76	P. Macfadyen & Co.	
Belgium, 3 pks.	Société John Cockerill	
E. Indies, 17 chta.	H. Johnson & Sons	
Germany, 1 cks.	T. H. Lee	

E. Indies, 18 chta.	Walker, Munroe & Co.	
" 7	Parry & Co.	
" 34	J. Owen	
C. America, 68 srns.	Mancha & Co.	
" 14	Chalmers, Guthrie & Co.	
E. Indies, 33 chta.	Parsons & Keith	
" 1	Eales, Prince & Co.	
" 87	J. Kenyon & Sons	
" 69	E. Bower & Co.	
" 9	L. Achard & Co.	
C. America, 31 srns.	L. & I. D. Jt. Co.	
E. Indies, 510 chta.	"	
Logwood		
B. W. I., 7 t.	Park, Macfadyen & Co.	
" 38	S. Dobree & Sons	
" 19	G. T. Benton & Son	
Myrabolams		
E. Indies, 5,533 bgs.	W. Shelcoit	
" 625	Dalton & Young	
" 667	L. & I. D. Jt. Co.	
Orchella		
Ceylon, 3 bgs.	R. G. Hall & Co.	
Tanners' Bark		
U. States, 20 t.	Lindsay, Bird & Co.	
Turmeric		
E. Indies, 119 bgs.	L. & I. D. Jt. Co.	
Valonia		
A. Turkey, 102 t.	A. & W. Nesbitt	
" 205	Hicks, Nash, & Co.	
" 50	Boucher, Mortimore, & Co.	
Parina —		
Germany, 100 bgs.	Bennett S. S. Co.	
Holland, 290	G. Hornzee	
" 23	Dunlop Bros. & Co.	
" 175	J. Barber & Co.	
" 100	R. Bennett & Co.	
Germany, 50	W. J. Jacobs	
Flux Skimmings —		
France, 10 t.	Cartledge & Co.	
Glucose —		
U. States, 550 pks. 787 c.	Bennett S. S. Co.	
" 50	Vokins & Co.	
Germany, 40	M. D. Co.	
Holland, 20	Phillips & Graves	
U. States, 1,500	E. Thompson & Co.	
" 300	Deering & Robottom	
" 50	Page, Son, & East	
" 1,650	Robinson, Son, & Co.	
" 850	R. G. Hall & Co.	
Glue —		
Holland, £125	J. Barber & Co.	
France, 116	J. Harrison	
Belgium, 304	J. Barber & Co.	
Italy, 120	Sander & Knott	
Austria, 600	Bailey & Leatham, Ld.	
France, 20	Mory & Co.	
" 30	B. & F. Wf. Co.	
" 312	Duche & Sons	
" 164	Burnett Bros. & Sons	

Infusorial Earth —		
Germany, £52	A. Haas	
" 5	C. Phillips	
" 70	"	
Lamp Black —		
U. States, 200 brls.	M. As	
Litharge —		
Germany, 6 cks.	H.	
Litnophone —		
Germany, 14 cks.	"	
Magnesia —		
Holland, 10 cks.	A. & M.	
Manure —		
Belgium, 100 t.	F. J. Corn	
E. Indies, 217	Fox, R.	
France, 105	Laws	
E. Indies, 101	F. J. Corn	
Bribeane, 3	Goad, R.	
S. W. Africa, 750	A. Haas	
Algeria, 460	Odams	
France, 23	W.	
Methyl Alcohol —		
Belgium, 3 dms.	F. Jon	
" 26	Lister	
Mica —		
E. Indies, 42 007	W. M. Sals	
Molasses —		
U. States, 100 cks. 550 c.	D.	
" 75	454	Torre
Ochre —		
Holland, 35 pks.	Phillips	
France, 4 cks.	O'Hara	
Spain, 50 bgs.	H. Johnson	
France, 208 cks.	W. Harr	
Spain, 108 pks.	O'Hara	
Oxalic Acid —		
Belgium, 3 pks.	Soci	
Norway, 20	M.	
Phosphate Rock —		
Belgium, 200 t.	West	
U. S., Col., 3,542	Anglo-Contl.	
Pitch —		
France, 33 brls.	Poth, Hill	
" 118	"	
Plumbago —		
Germany, 20 cks.	B. G.	
Italy, 200 bgs.	Blackw	
E. Indies, 199 cks.	Ross &	
Ceylon, 332	J. Thredder, Son	
U. States, 4 bxs.	Lamban	
Potash —		
France, 94 c.	W.	
" 100	F. W. Ber	
Potassium Bicarbonate —		
Holland, 19 cks.	A. & M.	
Potassium Carbonate —		
France, 36 c.	A. J.	
Belgium, 100	T. Ronalds	

um Chloride—
d. 16 cks. H. Johnson & Sons
um Permanganate—
d. 5 kgs. G. Rahm & Co.
y, 40 cks. T. H. Lee
m, 1,100 t. C. L. Vasey & Co.
re—
y, 12 cks. L. & I. D. Jt. Co.
63 J. Hall & Son
es, 2,475 bgs. Lucas & Spencer's
Wf.
y, 70 cks. S. E. Railway Co.
y, 1,000 c. J. W. Barker
Acetate—
120 pks. J. Harrison
14 cks. H. Lorenz
Oxalate—
20 cks. R. W. Greeff & Co.
40 cs. W. E. Cole
60 pks. and qty. Prop.
Dowgate Dk.
523 cs. Little & Johnston
45 Hernu, Peron, & Co.
110 Philipps & Graves
198 F. Claydon & Co.
120 Sawyer, Sons, & Co.
62 Leach & Co.
y, 460 Hale & Son
520 37 bgs. Seaward Bros.
10 brls. Pickford & Co.
80 cs. T. H. Lee
y, 6 cks.
20 J. Hall, junr., & Co.
300 E. & T. Pink
80 Becker & Wagner
y, 600 bgs. R. G. Hall & Co.
80 bgs. H. Hill & Sons
51 bls. J. Owen
190 H. Hill & Sons
615 Brandram Bros. & Co.
Acid—
14 cks. Kirkpatrick & Co.
23 B. & F. Wf. Co.
3 pks. F. C. Devon & Co.
rine—
2 cs. W. Harrison & Co.
4 cks. H. Johnson & Sons
4 Sawyer, Sons, & Co.
6 Steinhoff, Sons, & Co.
1 pk. H. Lambert
27 Lunham & Moore
2 Société John Cockerill
s—
5 cks. B. & F. Wf. Co.
in—
ing, 20 cs. S. Figgis & Co.
ead—
29 brls. D. C. Thomas & Sons
27 cks. H. B. Alder & Co.
19 Burrell & Co.
24 W. Taylor & Co.
40 E. J. Diggins
20 W. A. Rose & Co.
52 F. G. Clifford
12 1 cs. H. Lambert
alp—
800 pks. G. F. Green & Co.
68 Rosenberg, Loewe, & Co.
272 C. S. Lovell
641 Moreton Cox Bros.
1,572 16 bls. Johnsen & Jorgensen
80 Henderson, Craig, & Co.
300 W. E. Bott & Co.
600 W. G. Taylor & Co.
1,213 E. J. & W. Goldsmith
1,589 F. Claydon & Co.
200 W. E. Bott & Co.
1,600 J. Sharp
190 W. G. Taylor & Co.
400 Tough & Henderson
1,100 Moreton Cox Bros.
ide—
25 brls. M. Ashby, Ltd.
y, 175
y, 100 cks.
11 Philipps & Graves
20 Burrell & Co.
25 J. Matton

LIVERPOOL.

Week ending March 18th.

Acetate of Lime—
New York, 1,280 bgs.
Barytes—
Rotterdam, 20 cks.
Antwerp, 85 100 bgs.
Bone Meal—
Calcutta, 1,120 bgs.
Boracite—
Constantinople, 6,767 bgs.
Borate—
Galveston, 7,423 sks.
Caoutchouc—
Havre, 18 cs. Cunard S. S. Co.
Castor Oil—
Marseilles, 144 cks.
Chemicals (otherwise undes.)—
Antwerp, 2 cs.
Hamburg, 4 cks.
Chrome Ore—
Portland, 1 car. Andrews, Bell & Co.
Cobalt Oxide—
Rouen, 4 cs.
Cod Oil—
Hamburg, 2 brls.
Colours—
Rotterdam, 1 cs. 5 tubs
Cottonseed Oil—
New York, 100 brls. Kentucky Refg. Co.
Cream of Tartar—
Bordeaux, 25 cks. Sachse & Klemm
Oporto, 5
Tarragona, 5 pps.
Dyestuffs—
Annatto—
Rotterdam, 1 bskt.
Argols—
Bordeaux, 40 sks.
Oporto, 63 cks.
Divi Divi—
Hamburg, 412 bgs.
Extracts—
Hamburg, 60 bgs.
Indigo—
Calcutta, 218 chts.
Madder—
Rotterdam, 1 ck.
Saffron—
Valencia, 1 cs.
Shumac—
Palermo, 660 bgs. J. Kitchin, Ld.
150
Farina—
Fiume, 220 bgs.
Havre, 1,600 sks. Cunard S. S. Co.
Glucose—
New York, 450 brls. T. M. Duche & Sons
Baltimore, 1,435 250
Glue—
Rouen, 5 cks.
New York, 2 cs. "Bradford Observer"
Rotterdam, 100 bgs. 7 cks.
Infusorial Earth—
Rotterdam, 330 bgs.
Lamp Black—
New York, 110 pks.
Limestone—
Antwerp, 3 crts. J. T. Fletcher & Co.
2
Manganese—
Hamburg, 1 ck.
Manganese Ore—
Visagapatam, 1,000 t. Wigan Coal & Iron Co.
Molasses—
New Orleans, 800 brls.
Alexandria, 804 cks.
Ochre—
Marseilles, 149 brls.
Paint—
Boston, 20 cs. Leach & Co.
50

Paraffin Scale—

New York, 747 brls. Anglo-American Oil Co.
Phosphate Rock—
Brunswick Ga., 519½ t.
Plumbago—
Genoa, 100 kgs. G. Huntriss & Co.
Potash—
Dunkirk, 8 dms. 18 cks.
Rouen, 15
Pyrites—
Huelva, 3,442 t. Matheson & Co.
Saltpetre—
Hamburg, 100 kgs.
Drammen, 72 brls. J. H. Sumner & Co.
Calcutta, 3,107 bgs. Ralli Bros.
Soap—
Naples, 402 cs. S. Hoffmings & Co.
New York, 1 S. Hoffmings & Co.
N. Orleans, 1,733 brls.
Marseilles, 5 cs. R. Summers & Co.
Boston, 10 Boot's Pure Drug Co.
Soapstone—
Genoa, 200 bgs. G. Huntriss & Co.
Bordeaux, 650 5 cs. Geo. G. Blackwell, Sons & Co.
Starch—
Bremen, 2 bgs. 160 cs.
New York, 796 800 sks.
Rotterdam, 100
Antwerp, 268
" 160 J. T. Fletcher & Co.
Stearine—
Antwerp, 64 bgs. J. T. Fletcher & Co.
126
Tallow—
New York, 75 hds.
N. Orleans, 145 tcs.
Tartar—
Rotterdam, 4 cks.
Tartaric Acid—
Rotterdam, 10 cks.
Tin Ashes—
Genoa, 46 bgs.
Treacle—
Boston, 690 brls.
Yarnish—
Rotterdam, 3 cks.
Verdigris—
Bordeaux, 1 ck.
White Lead—
Dunkirk, 61 brls.
Antwerp, 26 cks. J. T. Fletcher & Co.
Rotterdam, 9
Wood Pulp—
Christiania, 15 cs. L. S. Dixon & Co.
Drammen, 10
Boston, 437 bls. Spicer Bros. & Co.
New York, 304
Rotterdam, 881 bdls. Christie & Co.
72 bls.
Zinc Oxide—
Antwerp, 50 brls.
New York, 200
Rotterdam, 20 cks. J. Matthews & Co.
Zinc White—
Rotterdam, 200 cks.

MANCHESTER.

Week ending March 20th.

Acetate of Lime—
New York, 1,091 bgs.
Alizarine—
Rotterdam, 54 brls.
Aniline Colours—
Antwerp, 5 cks.
Barytes—
Rotterdam, 23 cks.
Antwerp, 150 bgs.
Bone Ash—
Rio Grande Sul, 219 t.
Chemicals (otherwise undescribed)—
Rouen, 30 cks.
Chrome Alum—
Rotterdam 1 brl.

Colours—

Rotterdam, 33 cks. 12 cs. 46 brls.
12 bxs.
Boulogne, 32 1
Antwerp, 6
Cream of Tartar—
Rotterdam, 3 cks.
Farina—
Stettin, 1,169 bgs. Browne, Geveke, & Co.
Hamburg, 1,635 90
Gelatine—
Rouen, 10 cs.
Antwerp, 6
Glucose—
New York, 459 brls.
Ghent, 2,950 bgs.
Stettin, 10 cks.
Glue—
Rouen, 55 cks. 29 bls.
Stettin, 100 cs.
Rotterdam, 100
Lead Acetate—
Hamburg, 8 cks.
Limestone—
Antwerp, 2 cs.
Manganese Ore—
Rotterdam, 3 cks.
Mineral White—
Bordeaux, 100 bgs. G. G. Blackwell, Sons, & Co.
Fiume, 100 J. & P. Hutchison
New York, 350
Paraffin Scale—
New York, 60 brls. Anglo-American Oil Co.
Potash—
Rotterdam, 29 cks.
Potassium Chloride—
Hamburg, 10 cks. 38 dms.
Potassium Oxide—
Hamburg, 2 cs.
Pumice Stone—
Messina, 40 bgs.
Soap—
Bordeaux, 4 cs. J. & P. Hutchison
Sodium Acetate—
Antwerp, 16 cks.
Sodium Oxide—
Hamburg, 2 cs.
Starch—
New York, 300 bgs. 200 sks.
Rotterdam, 152 cs.
Ghent, 40
Antwerp, 217
Fiume, 100
Hamburg, 764
Tartar—
Bordeaux, 18 cks. J. & P. Hutchison
Tartaric Acid—
Rotterdam, 5 cks. 10 kgs.
Tin Oxalate—
Rotterdam, 12 brls.
Ultramarine—
Rotterdam, 2 cks. 40 cs.
White Lead—
Ghent, 16 brls.
Wood Pulp—
New York, 214 bdls. Christie & Co.
Stettin, 413 pks.
Rotterdam, 320
Sarpsborg, 1,511 Kellner Partington Co., Ld.
Zinc Ashes—
Stettin, 8 cks.
Zinc Oxide—
New York, 100 brls.
Stettin, 5 cks.
Rotterdam, 61 brls.

HULL.

Week ending March 20th.

Acids—
Bari, 21 cks. Wilson, Sons, & Co., Ld.
Rotterdam, 15 W. & C. L. Ringrose
Lghorn, 10 Wilson, Sons, & Co., Ld.
Antimony—
Lghorn, 40 cks. Wilson, Sons, & Co., Ld.

Arsenic — Hamburg, 120 cks. Wilson, Sons, & Co., Ltd.	Manure — Rotterdam, 508 bgs. Hutchinson & Son	Bone Meal — Rotterdam, 102 bgs.	Limestone — Antwerp, 7 crts. Tyne S.
Asbestos — Genoa, 8 pks.	Antwerp , 527 Bailey & Leatham	Castor Oil — Marseilles, 64 cks.	Manganese — New York, 149 cks. Withy
Barytes — Rotterdam, 71 cks. W. & C. L. Ringrose	Ochre — Rouen, 36 cks. Rawson & Robinson	Chemicals (otherwise undeciphered) Rotterdam, 20 brls. J. Rankine & Son	Phosphate — Ghent, 450 t.
Antwerp , 164 bgs. Bailey & Leatham	Marseilles , 40 Sons, & Co., Ltd.	Colours — Rotterdam, 121 pks. J. Rankine & Son	Quicksilver — Copenhagen, 100 cydls.
Bremen , 50 Greenwood & Son, Ltd.	Paint — New York, 85 cs. Wilson, Sons, & Co., Ltd.	Cottonseed Oil — New York, 60 brls.	Rosin — Savannah, 5,345 brls.
Antwerp , 85 cks. Blundell, Spence, & Co.	Boston , 4 "	Dyestuffs — Rotterdam, 1 cs. 19 brls.	Soap — Rotterdam, 2 cs. Tyne S.
Ghent , 33 Hutchinson & Son	Phosphate — Ghent, 260 t.	Alizarine — Rotterdam, 1 cs. 19 brls.	Starch — Rotterdam, 138 cs. Tyne S.
Caoutchouc — Christiania, 2 cs. Wilson, Sons, & Co., Ltd.	Dunkirk , 1,000 bgs.	Aniline — Amsterdam, 1 cs.	Superphosphates — Antwerp, 200 bgs. Tyne S.
Castor Oil — Genoa, 30 cks. Wilson, Sons, & Co., Ltd.	Plumbago — Hamburg, 15 cks. Wilson, Sons, & Co., Ltd.	Aniline Salts Rotterdam, 11 bxs. 33 brls.	Wood Pulp — Gothenburg, 122 pks.
Chemicals (otherwise undeciphered) Hamburg, 20 dms. Wilson, Sons, & Co., Ltd.	Potash — Hamburg, 2 dms.	Argols — Bordeaux, 75 cks. 48 bgs.	Christiania , 440 bbs.
Bremen , 1 ck. Veltmann & Co.	Dunkirk , 36 cks. Wilson, Sons, & Co., Ltd.	Extracts Genoa, 2 brls.	Rotterdam , 103 Tyne S.
Antwerp , 25 cks. Wilson, Sons, & Co., Ltd.	Pumice Stone — Messina, 140 pks. Wilson, Sons, & Co., Ltd.	Dyestuffs (otherwise undeciphered) Nantes, 10 cks.	Zinc Oxide — Antwerp, 10 brls. Tyne S.
Stettin , 5 "	Marseilles , 117 "	Gelatine — Hamburg, 3 cs.	GOOLE. Week ending March 17
Dunkirk , 28 dms. "	Messina , 39 "	Glucose — New York, 350 brls.	Alizarine — Rotterdam, 91 cks. 1 cs.
Cod Oil — Drontheim, 18 brls. Wilson, Sons, & Co., Ltd.	Huelva , 1,434 t.	Glue — Fiume, 200 brls.	Antwerp , 1 "
Christiansund , 3 "	Christiansund , 11 "	Gypsum — Bordeaux, 200 bgs.	Alkali — Calais, 7 cks.
Aalesund , 50 "	Saltpetre — Hamburg, 159 bgs. Wilson, Sons, & Co., Ltd.	Litharge — Rotterdam, 2 cks.	Aniline — Rotterdam, 220 cks. 145 cs.
Bergen , 77 "	Soap — Marseilles, 10 cs. Wilson, Sons, & Co., Ltd.	Phosphate — Bona, 1,700 t.	Antimony — Boulogne, 3 cks.
Hamburg , 8 cks. "	Soapstone — Genoa, 20 bgs.	Phosphoric Acid — Rotterdam, 1 ck.	Barytes — Antwerp, 100 bgs.
Colours — Hamburg, 10 cks. Saisons Brs. & Co.	Starch — Antwerp, 12 cs. Bailey & Leatham	Potash — Rotterdam, 76 cks. J. Rankine & Son	Caoutchouc — Boulogne, 2 cks.
Marseilles , 19 cs. Wilson, Sons, & Co., Ltd.	Ghent , 87 "	Amsterdam , 5 "	Colours — Hamburg, 30 cks. 10 cs.
Danzig , 9 pks. "	Bremen , 1,930 Veltmann & Co.	Potassium Chlorate — Marseilles, 16 cks.	Dyestuffs (otherwise undeciphered) Boulogne, 14 cks. 4 cs. 22
Antwerp , 13 "	Antwerp , 117 Wilson, Sons, & Co., Ltd.	Potassium Permanganate — Rotterdam, 1 ck.	Farina — Hamburg, 100 bgs.
Stettin , 9 "	Stearine — New York, 23 hds. Wil on, Sons, & Co., Ltd.	Rosin — New York, 381 brls.	Harlingen , 200 "
Dunkirk , 13 brls.	Talc — Leghorn, 10 bls. Wilson, Sons, & Co., Ltd.	Soap — New York, 50 brls.	Logwood — Belize, 400 t.
Rotterdam , 43 17 bxs. W. & C. L. Ringrose	Tallow — Dunkirk, 15 cks. Wilson, Sons, & Co., Ltd.	Starch — New York, 950 bgs.	Potash — Calais, 47 cks. 27
Cryolite — Copenhagen, 3 cks. Wilson, Sons, & Co., Ltd.	Tartar — Messina, 4 cks. Wilson, Sons, & Co., Ltd.	Stearine — Marseilles, 72 bgs.	Dunkirk , 47 cks. 27
Dyestuffs — Alizarine Rotterdam, 30 cks. W. & C. L. Ringrose	Naples , 4 "	Tallow — New York, 30 tcs.	Starch — Ghent, 130 cs.
Argols — Leghorn, 1 ck.	Tartaric Acid — Rotterdam, 4 cks. Hutchinson & Son	Tartar — Bordeaux, 26 cks.	Stearine — Antwerp, 4 cks. 11
Fustic — Hamburg, 1,080 pcs. Wilson, Sons, & Co., Ltd.	Treacle — New York, 1,258 brls. Wilson, Sons, & Co., Ltd.	Tartaric Acid — Fiume, 5 brls. Storror Brs.	Tartar — Rotterdam, 1 ck.
Trieste , 5 t. "	Varnish — New York, 21 pks. Wilson, Sons, & Co., Ltd.	Treacle — New York, 200 brls. Waddell & Bryson	Yarnish — Boulogne, 10 cks.
Indigo — Rotterdam, 1 chr. Hutchinson & Son	Waste Salt — Hamburg, 1,000 bgs.	Philadelphia , 150 "	Waste Salt — Hamburg, 14 cks. 30 b. 20 b.
Shumac — Trieste, 81 bls. Wilson, Sons, & Co., Ltd.	White Lead — Amsterdam, 25 cks. Hutchinson & Son	New York , 20 brls.	Antwerp , 14 cks. 30 b. 20 b.
Palermo , 95 bgs. "	Rotterdam , 32 "	Wood Pulp — New York, 49 rolls.	Wood Pulp — Rotterdam, 104 b. 40
Valonia — Smyrna, 330 bgs. Wilson, Sons, & Co., Ltd.	Antwerp , 6 Bailey & Leatham	Christiania , 3,246 bls. 11 cs.	
Farina — Harlingen, 1,500 bls. Hutchinson & Son	Wood Pulp — Drontheim, 280 bls. Wilson, Sons, & Co., Ltd.	Drontheim , 400 "	GRIMSBY. Week ending March 20th.
Stettin , 460 "	Gothenburg , 734 "	New York , 100 brls.	Barytes — Hamburg, 11 cks.
Glucose — Rotterdam, 80 bgs. Hutchinson & Son	Christiania , 2,074 "	Rotterdam , 25 cks.	Caoutchouc — Rotterdam, 2 cs.
New York , 250 brls.	Hango , 849 J. Good & Sons	Zinc Oxide — Antwerp, 5 cks. Bailey & Leatham	Chemicals (otherwise undeciphered) Rotterdam, 1 cs.
Boston , 290 "	Zinc Oxide — Antwerp, 5 cks. Bailey & Leatham	Zinc White — Rotterdam, 25 cks. Hutchinson & Son	Colours — Hamburg, 14 cks. 13 cs. 20 pks.
Norfolk , 150 "	Zinc White — Rotterdam, 25 cks. Hutchinson & Son	TYNE. Week ending March 20th.	Antwerp , 50 "
Stettin , 20 cks. Wilson, Sons, & Co., Ltd.		Barium Chlorate — Rotterdam, 350 bgs. Tyne S. S. Co.	Farina — Hamburg, 248 bgs.
Glue — Rouen, 31 cks. Rawson & Robinson	GLASGOW. Week ending March 25th.	Barytes — Rotterdam, 234 bgs. 58 cks. Tyne S. S. Co.	Indigo — Rotterdam, 3 cs.
Naples , 20 bgs. Wilson, Sons, & Co., Ltd.	Arachide Oil — Rotterdam, 4 cks.	Cod Oil — Drontheim, 11 brls.	Plumbago — Hamburg, 3 cks.
Antwerp , 4 cks. Bailey & Leatham	Barytes — Rotterdam, 67 cks. J. Rankine & Son	Colours — Copenhagen, 1 cs.	Saltpetre — Hamburg, 170 bgs.
Stettin , 10 "		Rotterdam , 2 cks. Tyne S. S. Co.	Starch — Antwerp, 105 cs.
Dunkirk , 38 pks. Wilson, Sons, & Co., Ltd.			

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending March 24th.

Disinfectants—

27 pks. £41

Disinfectants, and

tonia (Liquid)—

18 pks. £49

1 t. 2 c. £30

22 t. 10 c. £70

25 drs. £200

20 160

am Carbonate—

7 c. £12

10 c. 20

am Chloride—

11 c. £20

1 t. 9 45

am Sulphate—

101 t. 19 c. £808

50 390

1,275 1,275

2,030 2,030

1,062 1,062

502 502

171 8 4,016

40 1,375

us Ammonia—

3 c. £40

20 drs. £20

12 kgs. 30

15 brls. £32

1 t. 40 drs. £42

1 t. £107

4 10 83

Acid—

49 cks. £275

10 c. 26

30 drs. 26

20 cks. 11

Soda—

1 t. 34 c. £43

10 7

1 t. 12 35

3 4 23

1 t. 10 30

2 5

New York, 30 cs. 113

Hamburg, 12 cks. 112

Nitro-naphthaline

Libau, 1 ck. 16

Pitch

Rotterdam, 243 brls. £582

Aviles, 890 t. 1,597

Sables d'Olonne, 845 993

Varna, 50 brls. 16

Sydney, 33 pks. 18

Pyridine

Cologne, 7 brls. £108

Tar

Natal, 700 drs. £102

Toluol

Hamburg, 56 cks. £209

Copper Sulphate—

Seville, 1 t. £15

Cape Town, 1 10

Le Treport, 25 471

Genoa, 12 10 c. 200

Galariz, 1 6 94

Marseilles, 10 15 177

Cream of Tartar—

Napier, 5 c. £19

Melbourne, 10 41

Dunedin, 10 39

Brisbane, 15 67

Disinfectants—

Jamaica, 50 drs. £45

Brazil, 1 t. 37

Cape Town, 80 cks. 28

Algoa Bay, 4 bgs. 12

Melbourne, 34 cs. 77

Bombay, 1,077 drs. 90 cks. 316

Natal, 300 40 6 cs. 92

Calcutta, 2 43

Madras, 2 11

Bangkok, 25 pks. 39

Guano—

Trinidad, 35 t. £298

Hypophosphites—

New York, 17 cs. £262

Manure—

Rotterdam, 35 t. 1 c. £110

Dunkirk, 43 12 130

Madeira, 50 320

Guernsey, 3 30

Lauderman, 186 825

Antwerp, 45 10 374

New York, 2 16

Hamburg, 49 5 125

Alm ir, 30 210

Nitrogen Protioxide—

Melbourne, 1 cs. £26

Oxalic Acid—

Karachi, 10 c. £19

Phosphate—

Limón, 2 t. 10 c. £92

Potash Salts—

Madras, 5 l. £431

Potash and Soda—

Shanghai, 6 c. £12

Potassium Cyanide—

Sydney, 5 t. £120

Natal, 2 180

Potassium Prussiate—

Antwerp, 1 ck. £123

Philadelphia, 13 cks. 211

Boston, 12 176

New York, 30 468

Genoa, 4 40

Libau, 4 46

Salicylic Acid—

Toronto, 10 pks. £80

Saltpetre—

Santos, 2 t. 5 c. £48

Fremantle, 10 10

Sydney, 11 8 215

Bahia, 11 8 242

Rio de Janeiro, 2 9 53

Delagoa Bay, 1 21

Sheep Dip—

Algiers, 5 cs. £10

New Orleans, 1,000 2,000

Soda—

Trinidad, 1 c. £6

Soda Alkali—

Algoa Bay, 10 c. £7

Sodium Acetate—

Melbourne, 2 t. 2 c. £28

Sodium Bicarbonate—

Nelson, 2 t. £11

E. London, 2 10 c. 18

Sodium Prussiate—

New York, 1 ck. £11

Sulphur—

Natal, 2 t. 5 c. £18

Lisbon, 50 brls. 34

Algoa Bay, 6 t. 8 c. 53

Sulphuric Acid—

Stettin, 11 cs. £14

Superphosphates—

Harlingen, 49 t. 4 c. £110

Martinique, 363 1,089

Reval, 10 20

Trinidad, 35 105

Tartaric Acid—

Sydney, 1 t. 13 c. £186

Melbourne, 15 89

Nelson, 3 17

Brisbane, 1 2 123

LIVERPOOL.

Week ending March 24th.

Acetic Acid—

Lisbon, 2 t. 18 c. £17

Progreso, 3 8

Alum—

Montreal, 20 t. 18 c. 2 q. £93

Smyrna, 1 16 2 10

Cape Town, 1 5

Bourgas, 2 7 11

San Francisco, 20 112

Melbourne, 2 1 11

Casablanca, 1 5 1 6

Alumina sulphocyanide—

Lisbon, 3 c. £10

Aluminous Cake—

Calcutta, 17 t. 15 c. 1 q. £30

Ammonia—

Savanna, 2 c. 1 q. £6

B. Ayres, 1 8 3

Ammonium Carbonate—

Christiana, 10 c. £16

Rotterdam, 5 7

Bremen, 8 11

Bourgas, 4 7

B. Ayres, 17 26

Marseilles, 5 6

Cabedello, 3 1 q. 11

Ammonium Chloride—

Alexandria, 2 t. £64

Galatz, 2 t. 6 c. 10

Bourgas, 1 1 34

Trieste, 1 10 47

Boston, 5 3 94

Ililbao, 5 4 7

Genoa, 4 77

Cape Town, 1 31

Smyrna, 2 70

Ku-tendjie, 1 6 41

Bombay, 2 5 73

Damig, 1 20

Ammonium Sulphate—

Valencia, 66 t. 12 c. 1 q. £50

Leghorn, 30 14 3 41

Palermo, 10 3 20

Las Palmas, 13 10 118

Sourabaya, 475 3,500

Tegal, 20 640

Ghent, 80 720

Cullera, 125 5 2 1,001

Philadelphia, 101 18 818

Dunkirk, 102 14 3 865

Rouen, 60 10 2 498

Benzol—

Calcutta, 4 2 £30

Bleaching Powder—

Baltimore, 60 cks. 13

Boston, 537

Calamata, 6 179 cs.

Catania, 13 30 brls.

Dunkirk, 18

Geneva, 30

Havana, 26

Leghorn, 12

Naples, 15

Nante, 15

New York, 25

Pernambuco, 12

Rio de Janeiro, 216

Rouen, 43 300

St. John, N. B. 43

Syria, 3

Venice, 46

Boracic Acid—

Hiogo, 3 t. £84

Rotterdam, 1 30

Genoa, 1 30

Borax—

Rotterdam, 31 t. 16 c. 2 q. £627

E. London, 3 60

Hamburg, 7 19 1 136

Sydney, 4 80

Hiogo, 6 120

Stettin, 10 2 1 200

Antwerp, 26 14 2 537

Calcium Chloride—

Boston, 13 t. 17 c. 3 q. £30

B. Ayres, 2 11 6

Carbolic Acid—

Hamburg, 6 c. £36

Baltimore, 9 cs. 45

Calcutta, 65 dms. 1 4 cks. 50 t. 4 c. 150

New York, 2 t. 18 c. 4 cs. 210

Rosario, 5 25

Santander, 1 10 2 q. 69

Rouen, 12 10 2 q. 799

Caustic Potash—

Portland, O. 16 c. £19

Caustic Soda—

Alexandria, 22 dms.

Antwerp, 65 45 brls.

Baltimore, 130 pks. 12 cks.

Barcelona, 400 30

Bari, 30

Batavia, 20

Aniline Oil			Hong Kong,			Rangoon,			Barcelona,		
Barcelona,	11 cks.		Iloilo,	10		Rio Del Rey,	16		Bordeaux,	85 kgs.	
Calcutta,	1 dm.		Kotonou,	45		Rosario,	5		B. Ayres,	30	
Christiania,	1		Lagos,	60	20 bckts.	Rotterdam,	190		Cairo,	100 50	
Aniline Salts			Leghorn,	2	2 pks.	St. John, N.B.,	325		Calcutta,	60	
Calcutta,	1 ck.		Loango,	2		Salt Pond,	17	12	Galatz,	50 bgs.	
New York,	18 cks. 20 cs.		Manaos,	52 cs. 3		Sierra Leone,	100		Genoa,	10 kgs.	
St. Nazaire,	20		Mollendo,	11		Warre,	5		Guantanamo,	15 bgs.	
Cresote Oil			N. York,	4 cs. 11	4 pks.	Salt Cake—			Ibrail,	55 kgs.	
Lisbon,	800 brls.		Old Calabar,	1		Antwerp,	60 t.	£68	Kobe,	100	
N Orleans,	881 cks.		Pacasmayo,	18		Saltpetre—			Melbourne,	600	
Pitch			Para,	15	43 brls.	Lisbon,	t. 18 c. 3 q.	£189	Naples,	35	
Bilbao,	40 brls.		Parnahyba,	2		New York,	10	11	Odessa,	750	
Cette,	405 t.		Pernambuco,	30		Barcelona,	3	70	Rouen,	485 20 18	
Dunkirk,	805		Pimental,	12 cs.		Cartagena, N.G.,	18	67	Sodium Bichromate—		
Galatz,	80		Rio de Janeiro,	2		Sheep Dip—			Cavania,	1	
Nantes,	456		St. Thomas, W.I.	39	5 tcs.	Rangoon,	6 c. 1 q.	£8	Sodium Carbonate—		
Tar			San Juan,	2	1 ck.	Sandy Point,	5 t. 2	181	Callao,	1 cs.	
Galatz,	100 brls. 11 t. 10 c.		Sette Cama,	2	2 brls.	Punta Arenas,	15 18	400	Rotterdam,	50 brls.	
Ibrail,	15		Seville,	121		Cape Town,	5 8	235	Sodium Chlorate—		
Kustendjig,	34		Sierra Leone,	121		Sydney,	38 2	881	Boston,	275 kgs.	
Coal Products (otherwise undes.)—			Tal-abuano,	7	60 pks. 25 dms.	B. Ayres,	29 10	451	Genoa,	20 kgs.	
Boston,	11 kgs. 5 dms. 1 ck.		Vera Cruz,	5 cs.	7 c.	Calcutta,	5 1	112	Hamburg,	20 cks.	
Cobalt Oxide—			Victoria, W.C.A.	30 kgs.		Melbourne,	36 11	1,300	Rotterdam,	20 bgs.	
Gijon,	1 c. 3 q.	£62	Painters Colours—			Soda—			Sodium Silicate—		
Seville,	1	33	Alexandria, 2 cs. 20 cks. 92 kgs. 110 tins			Algao Bay,	1,300 bxs.	50 cs.	Bilbao,	20 brls.	
Copper Sulphate—			Antwerp,	8 12 1 dm.		Amsterdam,	100	6	Sodium Sulphate—		
Varna,	1 t. 10 c.	£38	Bahia,	5		Bilbao,	100	6	Antwerp,	87 bgs.	
Brindisi,	43 7	650	Calcutta,	5		Akassa,	61	10	Strontia—		
Catocolo,	15 2 q.	10	Callao,	65 72		Bombay,	240	500	Hamburg,	9 t. 14 c.	
Barcelona,	8 8 1	154	C. Town,	27		Boston,	240	500	Sulphur—		
Amsterdam,	1 2 1	22	Corral,	35		B. Ayres,	15	1	Sandy Point,	5 t. 1 c.	
Hamburg,	14 10 1	252	Galatz,	1	6 1 ck.	Cabenda,	15		E. London,	2 4 31	
La Pallice,	9 16 3	170	Honolulu,	1	2 19 brls.	Cameroons,	350		Boston,	250 7	
Bombay,	5	86	La Guayra,	2	6 6	Cape Coast,	120		Sulphuric Acid—		
Odessa,	3	50	Maranham,	5		Cape Town,	1,627	100	Manaos,	7 c.	
Stettin,	2 10 3	39	Matadi,	5		Colon,	300		Rio de Janeiro,	1 t.	
Konigsberg,	2 7	42	Mayaguez,	20	4	Delagoa Bay,	300		Superphosphates—		
Marseilles,	113 13 1	2,010	Melbourne,	20		Demerara,	1,765		Las Palmas,	50 t.	
St. John's, Nfld.	5 1	5	Paraffin Wax—			E. London,	780	11	Bordeaux,	80 8 c.	
Rotterdam,	5	87	Colon,	10 dms.		Fernando Po,	62		Rocheport,	122 9 18	
Galatz,	3 10	63	Rio de Janeiro,	10 cs.		Gd. Canary,	271		Antwerp,	9 17	
Rouen,	49 6	890	Tampico,	5 bgs.		Hamburg,	50		Pacasmayo,	49 4	
Messina,	3 19	73	Phosphate—			Havre,	515		Arcas,	62 9	
Leghorn,	61 1	1,066	Alexandria,	50 t.	£94	Iquitos,	100		Hamburg,	62 9	
Nantes,	94 2	1,601	Phosphorus—			Karachi,	31		Cullera,	175	
Genoa,	406 11	6,359	Shanghai,	2 t. 14 c.	£540	Lagos,	34		Tin Chloride—		
Bordeaux,	406 2	6,823	Kobe,	5	65	Lima,	6		Lisbon,	3 c. 19	
Cette,	291 17	4,875	Hiogo,	2	520	Malta,	40		Varnish—		
Lisbon,	49 3	826	Hamburg,	2	89	Manaos,	500		Calcutta,	2 cs. 15 10	
Palermo,	10 13	186	Potassium Bichromate—			Mosvel Bay,	725	8	Cape Town,	2	
Naples,	62 1	995	Malaga,	1 t. 4 c.	£48	N. Orleans,	100		Cavania,	1	
Venice,	146 19 1	2,403	St. John's, Nfld.,	5 2 q. 11		Newcastle,	195	55	Galatz,	1	
Bari,	4 16	81	Rouen,	1 1 1 42		New York,	950	1	Genoa,	1 ck. 1	
Copperas—			Potassium Carbonate—			Para,	400		Honolulu,	1 ck. 18	
Byerout,	4 t. 10 c.	£12	Cape Town,	1 t. 1 c.	£27	Pt. Elizabeth,	1,600	50	Ibrail,	3 brls.	
Smyrna,	2 4 1 q.	6	Potassium Chlorate—			Portland, Me.,	625	800	Leghorn,	14 18	
Bilbao,	2	48	New York,	7 t. 10 c.	£228	Pt. Natal,	625	50	Madras,	4 cs.	
Disinfectants—			Vera Cruz,	1	34	Rangoon,	500	15	Melbourne,	10	
Antofagasta,	2 c.	£65	Baltimore,	2 17	69	Rio de Janeiro,	207	2	Naples,	3 3	
E. London,	4 1 q.	5	Amsterdam,	4	7	St. John's, Nfld.,	297		Pernambuco,	5 5	
Baltimore,	9 cs.	49	Genoa,	1 10	48	Shanghai,	2 857	13 bdis.	St. John, N.B.,	5 9	
New York,	5 t. 1	70	Copenhagen,	1 10	45	Sierra Leone,	20	40	Sierra Leone,	2 10	
Calcutta,	45 cks. 6 c. 3 cs. 18 dms. 62		Konigsberg,	15	23	Singapore,	2,216	3	Verdigris—		
Iron Oxide—			Naples,	2	65	Trinidad,	125	4	Hiogo,	6 c. 20	
New York,	7 t. 12 c.	£31	Hamburg,	5 19	108	Soda—			White Lead—		
Gijon,	2 12	15	Gothenburg,	1 13	59	Callao,	7 kgs.	2 cks.	Akassa,	10 kgs.	
Havre,	6 7 2 q.	38	Hiogo,	48 15	1,616	Portland, Me.,			MANCHESTER		
Genoa,	6 1	41	Sydney,	2 9	90	Soda Alkali—			<i>Week ending March 24th</i>		
Lime—			Potassium Prussiate—			Genoa,	35 brls.		Alumina Acetate—		
Demerara,	40 t. 5 c.	£32	Naples,	2 c.	£8	Soda Ash—			Treport,	2 cks.	
Magnesia—			Sal—			Antwerp,	2,200 bgs.		Ammonium Chloride—		
B. Ayres,	7 cks.		Antwerp,	179 t. 13 c.		Baltimore,	1,200	203 cks.	Beyrout,	5 brls.	
Havre,	20 cs.		Bakana,	50 4		Boston,	920	126	Aniline Colours—		
Lisbon,	1		Baltimore,	1,014 18		Brisbane,		156	Rotterdam,	4 cks. 1 ck. 1 kg	
Tarragona,	14		Barbadoes,	12 10		Calcutta,		11	Hamburg,	10 dms.	
Trieste,	1		Boston,	300		Christiania,			Aniline Oil—		
Magnesium Carbonate—			B. Ayres,	20		Corfu,			Antwerp,	5 dms.	
Bilbao,	4 18 c.	£105	Calcutta,	180		Genoa,	134		Aniline Salts—		
Magnesium Chloride—			Cameroons,	33 8		Gothenburg,	100	20	Antwerp,	15 cks.	
Calcutta,	2 cks.		Cape Town,	17		Hamburg,	800	10	Hamburg,	15	
Magnesium Sulphate—			Christiania,	63		Hiogo,	20	100	Benzol—		
Pelotas,	10 cs.		Conakry,	52 10		Soda Crystals—			Treport,	60 cks.	
Manure—			Demerara,	62 10		Antwerp,	5,046	219 tcs. 12	Borax—		
Bordeaux,	48 t. 18 c.	£205	Egwanga,	50 5		Parnahyba,	15		Antwerp,	168 cks.	
Gd. Canary,	5	26	Fernandina,	500		Philadelphia,	2,800	194 35	Carbolic Acid—		
Oxalic Acid—			Fuca,	20		Rio de Janeiro,	100 brls. 180		Rotterdam,	25 cks.	
Boston,	7 t. 9 c.	£260	Ghent,	150		Rio Grande Do Sul,	100		Caulic Soda—		
Paint—			Gd. Bassa,	112 5		San Francisco,	157		Treport,	30 dms.	
Addah,		2 dms.	Iceland,	50 6		Sodium Bicarbonate—			Hamburg,	16 cks.	
Algao Bay,	3 cks.		Loango,	20 6		Alexandria,	80 brls.		Colours—		
Antofagasta,	3 cs.		Halifax,	18 18		Chemicals (otherwise unident)			Treport,	6 cks. 6 cs.	
Antwerp,	4 cs.	5 kgs.	Iquito,	15		Copperas—			Cottonseed Oil—		
Beyrout,	6 17	24	Karachi,	26 5		Boston,	25 kgs. 35 brls.		Tunis,	50 brls.	
Bilbao,		45 brls.	Lago,	100	50 cs.	Malta,	40		Cottonseed Oil—		
Bonny,			Manila,			Pernambuco,	20		Cottonseed Oil—		
Bordeaux,			M. Video,			Valparaiso,	254		Cottonseed Oil—		
B. Ayres,	2 cs. 2		N. Orleans,	551		Sodium Bicarbonate—			Cottonseed Oil—		
Calcutta,	5	90 dms.	Old Calabar,	110 9		Sodium Bicarbonate—			Cottonseed Oil—		
Colon,	6 cs. 5		Opobo,	120		Sodium Bicarbonate—			Cottonseed Oil—		
Demerara,		95	Portland, Me.,	6		Sodium Bicarbonate—			Cottonseed Oil—		
Guayaquil,		107	Quillo,	25		Sodium Bicarbonate—			Cottonseed Oil—		
Hamburg,	18					Sodium Bicarbonate—			Cottonseed Oil—		

18—			
burg,	8 sks.		
o Blue—			
erdam,	1 cs.		
Oxide—			
erdam,	1 bg.		
ed Oil—			
ndria,	qty.		
esium Sulphate—			
ndria,	112 kgs.		
tha—			
rt,	29 cks.	12 dms.	
ake—	862 t.		
erp,	2,015 c.		
et,	245 cs.		
Bottoms—			
rdam,	85 dms.		
m Naphthionate—			
rdam,	42 cks.		
rt,	8		
il—			
rp,	10 cks.	1 dm.	
urg,	110 cks.		
rdam,		20 dms.	
HULL.			
<i>Week ending March 20th.</i>			
ork,	53 cks.	69 dms.	
ork,	16	61	
ium Sulphate—			
io,	2,162 bgs.		
io,	175		
io,	200		
rdam,		8 dms.	
ing Powder—			
als (otherwise undescribed)			
als,	4 cs.		
n,	14 cks.		
h,	2		
hagen,	13		
ania,	17	361 slbs.	
h,	7		
heim,	5		
iburg,	10	5 pks.	
h,	1		
urg,	37	290	19
iberg,	1		
h,	2		
ork,	211	25	
dam,	5		
ger,	2		
h,	16		
Clay—			
h,	100 bgs.		
eed Oil—			
dam,	725 c.		
rp,	244		
h,	68		
agen,	67		
ania,	20		
heim,	95		
rg,	2,490		
dam,	709		
h,	368		
ger,	19		
h,	504		
is (otherwise undescribed)			
h,	1 ck.		
h,	8		
h,	1	1 cs.	
h,			
h,	2 bgs.		
h,	4		
h,	100 t.		
Oil—			
dam,	253 c.		
h,	28		
agen,	254		
ania,	303		
heim,	162		
rg,	378		
ger,	105		
h,	127		
h,			
agen,	5 bgs.		
h,	62 t.		
re Colours—			
dam,	24 cks.		
h,	1	10 dms.	

Copenhagen,	12	15 cs.	
Christiania,	15	1	100
Danzig,		3	31 pks.
Dunkirk,			2 dms.
Drontheim,			20
Ghent,	2	1	
Gothenburg,	32		
Hango,		2	
Hamburg,	20		295 pks.
New York,	35		
Rotterdam,	5		
Stettin,	3		146
Stavanger,	3		
Trieste,	8		
Antwerp,	64	1	8 dms.
Pitch—			
Antwerp,	359 t.		
Dunkirk,	100		
Salt—			
Calcutta,	973 t.		
Soap—			
Christiania,		1 cs.	
Starch—			
Copenhagen,		250 cs.	
Tallow—			
Amsterdam,	36 cks.		
Copenhagen,	85		
Dunkirk,	98		
Tar—			
Amsterdam,	5 cks.		
Antwerp,	5		
Bremen,	4		
Copenhagen,	15		
Danzig,	42		
Konigsberg,	2		
Rotterdam,	5		200 brls.
San Francisco,			
Stettin,	1		
Stavanger,	3		
Varnish—			
Antwerp,		1 cs.	
Christiania,		1	
Gothenburg,			
Danzig,		1 ck.	
Hamburg,		4	
Rotterdam,		6	3
Stavanger,		2	
Whiting—			
Antwerp,	33 cks.		
San Francisco,	84		

GLASGOW.

Week ending March 25th.

Ammonium Sulphate—			
Barbadoes,	51 t.	8 1/4 c.	
Demerara,	96	18 1/4	
Ghent,	125		
Venice,	20	7 1/2	
Bleaching Powder—			
Melbourne,	66 t.	19 1/4 c.	
Borax—			
Venice,			£22
Castor Oil—			
Santos,			£65
Caustic Soda—			
U.S.A.,	24 t.	6 c.	
Coal Products—			
Pitch			
Brindisi,			£787
Caen,	550 t.		
Tar			
Hamburg,	16 t.		
Bengalore,			£20
Calcutta,			125
Madras,			132
Coal Products (otherwise undes.)—			
Amsterdam,			£7
Christiania,			6
Danzig,			555
Rotterdam,			250
Cod Oil—			
Adelaide,			£53
Melbourne,			124
Dried Blood—			
Rouen,	26 t.	9 1/4 c.	
Dyestuffs (otherwise undescribed)			
Melbourne,			£144
Extracts—			
Mogog,			£70
Waterloo,			35
Gelatine—			
New Brunswick,			£87
Glucose—			
Ootacamund,	8 t.	3 1/4 c.	
Lead Nitrate—			
Italy,			£94
Paris,			160

Linseed Oil—			
Hong Kong,	4 t.	8 1/4 c.	
Ad-laide,	3	2 1/4	
Rangoon,	1	1 1/2	
Rio de Janeiro,	22	10 1/2	
Santos,	1	9 1/2	
Logwood—			
Melbourne,			£87
Paint—			
Lima,			£45
Painters' Colours—			
Adelaide,			£148
Freemantle,			142
Melbourne,			194
Rangoon,			98
Calcutta,			84
Cape Town,			105
Paraffin Wax—			
Antwerp,			£120
Fiume,			117
Trieste,			376
Skien,			30
Freemantle,			87
Cape Town,			49
Potassium Bichromate—			
Ghent,			£443
U.S.A.,			703
Venice,			372
Amsterdam,			48
Antwerp,			84
Melbourne,			227
Rouen,			572
Troyes,			226
Soap—			
E. London,	3 t.	15 c.	
Sodium Bichromate—			
Antwerp,	8 t.	2 1/4 c.	
Canada,	5	8	
Rouen,	12	5	
Starch—			
Rotterdam,			5 c.
Sulphur—			
Demerara,	4 t.	8 1/4 c.	
Sulphuric Acid—			
Demerara,			£50
Calcutta,			40
Rangoon,			347
Natal,			20
Tallow—			
Venice,	75 t.	4 1/4 c.	
Rotterdam,	14	2	
Tartaric Acid—			
U.S.A.,			£100
Treacle—			
Bergen,	2 t.	13 c.	
Christiania,	10	4	
Varnish—			
Rangoon,			£61
White Lead—			
Calcutta,			£21
Zinc Ashes—			
Rotterdam,			£265
h,		14 t.	

TYNE.

Week ending March 20th.

Alkali—			
Amsterdam,	28 t.	19 c.	
Rotterdam,	4	1	
Copenhagen,	1	13	
Alumina Sulphate—			
Lisbon,	10 t.		
Rostock,	20		
Ammonia—			
Barcelona,	1 t.	7 c.	
Ammonia (Liquid)—			
Aarhus,	1 t.	5 c.	
Ammoniated Super—			
Rostock,	132 t.		
Antimony—			
Barcelona,	1 t.	1 c.	
Hamburg,	17	10	
Arsenic—			
Antwerp,			3 c.
Barium Carbonate—			
Hamburg,			10 c.
Bleaching Powder—			
Antwerp,			11 t. 6 c.
Amsterdam,			2 19
Rotterdam,			20 12
Odense,			10 4
Copenhagen,			9 16
Libau,			56 1
Christiania,			7 15
Bergen,			15 1
Dunkirk,			5
Hamburg,			9 2

Caustic Soda—			
Hamburg,	19 t.	18 c.	
Antwerp,	4	18	
Copenhagen,	6	13	
Lamp Black—			
Antwerp,	2 t.	12 c.	
Linseed Oil—			
Ergasteria,			12 c.
Pozzuoli,	3 t.		12
Litharge—			
Rotterdam,			6 c.
Copenhagen,	1 t.		2
Magnesia—			
Barcelona,	3 t.	18 c.	
Hamburg,			11
Odense,			8
Manure—			
Valencia,	140 t.		
Dunkirk,	100		1 c.
Paint—			
Ergasteria,	1 t.	3 c.	
Hamburg,	5		6
Bergen,			
Phosphates—			
Valencia,	10 t.		
Plumbago—			
Bergen,			4 c.
Soap—			
Copenhagen,			8 c.
Soda—			
Hamburg,	1 t.	12 c.	
Amsterdam,	11	17	
Rotterdam,	10		
Odense,	7	6	
Christiania,	10	6	
Soda Ash—			
Hamburg,	3 t.	8 c.	
Sodium Sulphate—			
Antwerp,	40 t.	2 c.	
Superphosphates—			
Rostock,	401 t.		
Varnish—			
Hamburg,			16 c.
White Lead—			
Copenhagen,	1 t.	18 c.	

GOOLE.

Week ending March 17th.

Benzol—			
Rotterdam,	24 cks.		
Chemicals (otherwise undescribed)			
Amsterdam,	19 cks.		
Boulogne,	2 cs.		
Harlingen,	20 bgs.		
Coal Products (otherwise undes.)—			
Amsterdam,	18 cks.		
Antwerp,			
Boulogne,	56	1	1 dm.
Ghent,	1 tin		10
Hamburg,			
Harlingen,			1
Rotterdam,	6	6	
Colours—			
Calais,			1 cs.
Ghent,			1 dm.
Harlingen,	3 cks.		
Manure—			
Dunkirk,	522 bgs.		
Ghent,	349		
Pitch—			
Dunkirk,	317 t.		

GRIMSBY.

Week ending March 20th.

Chemicals (otherwise undescribed)			
Antwerp,	1 ck.		
Dieppe,	2		
Hamburg,	29		
Coal Products (otherwise undes.)—			
Dieppe,	187 cks.		
Hamburg,	6		
Colours—			
Dieppe,	1 pk.		
Hamburg,	9 cs.		
Malmö,			2 dms.

PRICES CURRENT.

WEDNESDAY, MARCH 31ST,

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s	d
Acetic, 25% and 40%	per cwt.	5/10½	& 8/9
Glacial	"	"	40/-
Arsenic S.G., 2000	"	"	1 4 0
Fluoric	per lb.	0 0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0	10
" (Cylinders), 30° Tw.	"	0 3	0
Nitric 80° Tw.	per lb.	0 0	1½
Nitrous	"	0 0	1½
Oxalic	net	0 0	3½
Phosphoric, 1750°	"	0 0	11½
Picric	"	0 0	11
Sulphuric (fuming 50%)	per ton	15 10	0
" (monohydrate)	"	5 10	0
" (Pyrites, 168°)	"	3 0	0
" 150°	"	1 5	0
" (free from arsenic, 145°)	"	1 7	6
Sulphurous (solution) S.G. 1025	"	3 0	0
Tannic (pure)	per lb.	0 1	2½
Tartaric	"	0 1	0
Arsenic, white powdered	nett per ton	24 0	0
Alum (loose lump)	"	4 10	0
Alumina Sulphate (pure)	"	4 2	6
Aluminaferric	"	2 5	0
Aluminium (Ingot metal 98.99%)	nett per cwt.	7 17	6
Ammonia, Anhydrous	per lb.	0 1	3
" 880=28° B.	"	0 0	2½
" =24° B.	"	0 0	1½
" Carbonate	nett	0 3	0
" Muriate	per ton	18 10	0
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-	
" Nitrate	per ton	33 0	0
" Phosphate	per lb.	0 0	4½
" Sulphate (grey) London	per ton	9 15	0
" (grey) Hull	"	7 17	6
Aniline Oil (pure)	per lb.	0 0	8
Aniline Salt	"	0 0	7½
Antimony	per ton	31 0	0
" (tartar emetic)	per lb.	0 0	9
" (golden sulphide)	"	0 0	10
Barium Chloride	per ton	7 0	0
" Carbonate (native)	"	3 10	0
" Sulphate (native levigated)	"	42/6 to 65/-	
Bleaching Powder, 35%	nett	6 7	6
" Liquor, 7%	"	3 10	0
Bisulphide of Carbon	"	12 0	0
Chromium Acetate (crystal)	per lb.	0 0	6
Calcium Chloride	per ton	2 2	6
China Clay (at Runcorn) in bulk	"	15/- to 30/-	

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	nett per lb.	0 0	7
Magenta	"	0 3	0
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0 0	8
Benzol, 90%	per gallon	0 2	7
" 50/90	"	0 2	4½
Carbolic Acid (crude 60°)	per gallon	0 2	6
" (crystallised 40°)	per lb.	0 0	8
" (liquid 95/97%)	per gallon	0 1	1
Creosote (ordinary)	"	0 0	2
" (filtered for Lucigen light)	"	0 0	2½
Crude Naphtha 30% @ 120° C.	"	0 1	1
Grease Oils, 22° Tw.	per ton	2 15	0
Pitch, f.o.b. Liverpool or Garston	"	1 3	0
Solvent Naphtha, 90% at 160°	per gallon	0 1	8
Copper	per ton	48 12	6
" Sulphate	"	17 15	0
" Oxide (copper scales)	"	44 10	0
Glycerine (crude)	"	37 10	0
" (distilled S.G. 1250°)	nett, per oz.	0 0	9
Iodine	"	1 10	0
Iron Sulphate (copperas)	per ton	1 10	0
" Sulphide (antimony slag)	"	2 0	0
Lead (sheet) for cash	"	12 15	0
" Litharge Flake (ex ship)	"	14 15	0
" Acetate (white)	"	23 0	0
" brown	"	15 10	0
" (white lead) pure	"	16 15	0
"	"	1 0	0

Lime, Acetate (brown) (ex ship)	per ton	5	6
" (grey) (ex ship)	"	8	
Magnesium (ribbon and wire)	per oz.	0	
" Chloride (ex ship)	per ton	2	
" Carbonate	per cwt.	1	
" Calcined Magnesia	per ton	9	
" Sulphate (Epsom Salts)	per ton	2	
Manganese, Sulphate	"	16	
" Borate	per cwt.	2	
" Ore, 70%	per ton	3	
Methylated Spirit, 61° O.P.	per gallon	0	
Naphtha (Wood), Solvent	"	0	
" Miscible, 60° O.P.	"	0	

Oils:—			
Cotton-seed	per ton	15	
Linseed	"	16	
Petroleum, American	per gallon	0	
Stearine	per ton	19	
Phosphorus (yellow)	per lb.	0	
" (red)	"	0	
Potassium (metal)	per oz.	0	
" Bichromate	nett per lb.	0	
" Carbonate, 90% (ex ship)	per ton	17	
" Chlorate	per lb.	0	
" Cyanide, 98%	"	0	
" Hydrate (Caustic Potash) 90%	per ton	24	
" (Caustic Potash) 75/80%	"	20	
" (Caustic Potash) 70/75%	"	19	
" Nitrate (refined)	per cwt.	1	
" Permanganate	per cwt.	3	
" Prussiate Yellow	per lb.	0	
" Sulphate, 90% (ex ship)	per ton	9	
" Muriate, 80% (do.)	"	8	
Silver (metal)	per oz.	0	
Sodium (metal)	per lb.	0	
" Carb. (refined Soda-ash) 48%	nett per ton	4	
" (Caustic Soda-ash) 48%	"	4	
" (Carb. Soda-ash) 48%	"	4	
" (Alkali) 58%	"	3	
" (Soda Crystals)	"	3	
" Acetate (ex-ship)	"	13	
" Arseniate, 45%	"	15	
" Chlorate	per lb.	0	
" Borate (Borax)	nett, per ton	17	
" Bichromate	per lb.	0	
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	"	0	
" (74% Caustic Soda)	"	8	
" (70% Caustic Soda)	"	7	
" (60% Caustic Soda)	"	6	
" (pure liquor 90° Tw.)	"	3	
" 77/78% powdered (99% hydrate)	"	13	
" Bicarbonate	"	6	
" Hyposulphite	"	5	
" Manganate, 25%	"	15	
" Nitrate (95%) ex-ship Liverpool	per cwt.	0	
" Nitrite, 98%	per ton	30	
" Phosphate	"	12	
" Silicate (glass)	per ton	4	
" (liquid, 100° Tw.)	"	3	
" Stannate, 40%	per cwt.	3	
" Sulphate (Salt-cake)	per ton	0	
" (Glauber's Salts)	"	1	
" Sulphide	"	6	
" Sulphite	"	5	
Strontium Hydrate, 100%	"	3	
Sulphocyanide Ammonium, 95%	per lb.	0	
" Barium, 95%	"	0	
" Potassium	"	0	
Sulphur (Flowers)	per ton	7	
" (Roll Brimstone)	"	6	
" Brimstone: Best Quality	"	4	
Superphosphate of Lime (26%)	"	2	
Tallow	"	18	
Tin Crystals	per lb.	0	
" English Ingots	per ton	63	
Zinc (Spelter)	"	17	
" Chloride (solution, 100° Tw.)	"	5	

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

116.

SATURDAY, APRIL 10, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Steel Trades	249
Report on Manure Material	250
Latest Complete Speci-	251
Well Joint Committee	251
Chemical Industry	252
Notings	253
Correspondence	253
Use in Agricultural	254
.....	256
Tar and Ammonia Products	256
Miscellaneous Chemical Market ..	256
Liverpool Oil and Colour Market ..	256
The Metal Markets	256
Hull Paint, Oil, and Colour Report ..	256
West of Scotland Chemicals	257
Tyne Chemical Report	257
New Companies	257
Imports	257
Exports	260
Prices Current	264

ADVERTISEMENT.

ED, Offers for a first-class Umber in fine
er; can produce about ten tons per week—Samples and particulars
the Gamblesby Fell Mining Company, Newcastle-on-Tyne.

Notices.

munications for the *Chemical Trade Journal* should be
and Cheques and Post Office Orders made payable to—

BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

ms of Subscription, commencing at any date, o the
Trade Journal,—payable in advance,—including postage
of the world, are as follows:—

y (52 numbers) 12s. 6d.
Yearly (26 numbers) 6s. 6d.
erly (13 numbers) 3s. 6d.

re invited to forward items of intelligence, or cuttings
newspapers, of interest to the trades concerned.

tations for the Editor, if intended for insertion in the
's issue, should reach the office not later than Tuesday

reports, and correspondence on all matters of interest to
d and allied industries, home and foreign, are solicited.
nts should condense their matter as much as possible,
side only of the paper, and in all cases give their names
es, not necessarily for publication. Sketches should be
rate sheets.

Advertisements.

vertisements of Situations Vacant, Premises on Sale or To be Let,
Wants, and Specific Articles for Sale by Private Contract are
Chemical Trade Journal at the following rates:—

Words and under 2s. 6d. per insertion
ach additional 10 words 6s. 6d.

ents of Situations Wanted are inserted at one-half the
when prepaid, viz:—

Words and under 1s. 6d. per insertion.
ach additional 10 words 6s. 3d. "

rtisements, Announcements in the Directory
prepaid, are charged at the Tariff rates, which will be forwarded on

CURRENT TOPICS.

MORE SMOKE.

SEEMINGLY the smoke craze is catching and spreads
from town to town. Manchester, apparently, is no
sooner slowly recovering from what was almost an epidemic
than Birmingham, or, more strictly speaking, King's Norton,
is suffering from an outbreak.

The deputation that waited on the Rural District Council
seemed to have much the same vagueness of purpose that
characterises the majority of anti-smoke deputations.

Presumably black smoke is on the increase, but so is the
assessment and general prosperity of the district. So long
as it was well known that manufacturers were doing all that
could be reasonably expected towards diminishing the volume
of smoke emitted, there was nothing more to be said or done,
and this seems to have been the attitude of the Council. It
is a very different one to that adopted by the Manchester
City Council.

The deputation were told what efforts were being made by
the manufacturers with a view to suppressing the eyesore,
and were invited to propose some scheme on which the
Council could work. As they would not venture to actually
contend that the smoke was injurious to health, but merely
insisted that it was a nuisance, matters did not progress
much further.

The only actual suggestion made was to the effect that
what had been done in Birmingham could be done in King's
Norton, but when the surrounding circumstances were
explained and the deputation had to choose between no smoke
and practically nothing to assess, or the contrary with the
"nuisance" thrown in, the matter seemed to settle itself, and
in a very common sense way too. Perhaps the gentlemen
forming the deputation had in their minds a recollection of
the effects of a harassing policy in Wolverhampton and what
it cost that town?

One point in particular should be noted. The District
Council, even though a Rural District Council, seemed to
have thoroughly satisfied themselves that manufacturers were
not merely talking, but had actually spent some hundreds of
pounds on smoke preventing appliances with more or less
success. Knowing this, they preferred some smoke and
prosperity to Arcadian surroundings and poverty. Some
City Councils might profit by a study of this point.

THE PROGRESS OF PATENT LAW REFORM.

About six weeks back we had this subject under discussion
in these columns, and it is pleasing to note that on Thursday
this week one of the suggestions then thrown out was put
into practice. We advocated a meeting at which members
of Parliament should attend and be educated in the details
of the arguments against the long-offending Section 22 of the
Patent Act.

The mountains, however, could not come, so the prophets went instead, and, in the form of an influential deputation, laid before the President of the Board of Trade some information that should do more than merely arrest the attention of Mr. Ritchie.

The policy adopted was a wise one. Knowing the usual put-off is the plea that all the Law, and all its imperfections, must be considered, the deputation admitted at the outset that there was ample room for improvement in many directions. They, however, laid special stress on the most glaring evil—the uncertainty and inadequacy of section 22—and gave documentary evidence which proved to the hilt the very point that the President of the Board of Trade said he wanted proving, when answering Captain Philpots and Mr. Schwann last February.

Some of the examples of the utter uselessness of section 22 are of great interest to the Chemical industries, and we hope to be able to give a *précis* of them in our next issue, for there is but little doubt that their publication will strengthen the hands of many other sufferers under this particular section.

This evidence was followed up with a suggestion for remodelling the offending clause at once, after which the whole subject of Patent Law revision might be entrusted to a Special Commission, who, in the course of their sittings, which would necessarily be prolonged, would be able to benefit by the experience gained from the working of the amended section.

They will thus have a practical criterion by which to estimate the expediency of further changes. At the same time, the evils that are now wrought under section 22 would not be allowed to operate unchecked against the interests of British inventors, during the months and possibly years occupied by the Commission in thrashing out other objectionable but less flagrant flaws. Whether the proposals of the deputation will in any way be acted on remains to be seen, but at all events the plea of ignorance, or want of justification, will have been removed, and that is something done.

BRITISH IRON AND STEEL TRADES.

TWO returns of considerable interest for steel and iron producers have just been issued by the British Iron Trade Association. One of these relates to the output of pig-iron, and the other to the production of steel in this country during the past year. Both absolutely and relatively the statistics may be pronounced highly satisfactory, though that judgment is subject to qualification in regard to some of the details. Under both heads we have once again broken the record. Our output of pig-iron last year reached the splendid total of 8,563,209 tons, which is an increase of 667,534 tons, or 8 per cent. in excess of the previous year's total, and nearly 70,000 tons more than the previous maximum output, which occurred in 1882. Smelters, we are told, were considerably hampered last year by the inadequate supply of iron ores, which are now largely imported from Spain and other countries. Had the available supply been larger and more constant the output of pig-iron in all probability would have been considerably increased. This return places us once more in the van of the iron-producing countries of the world, from which we were temporarily deposed a year ago by the remarkable development of the iron production of the United States. It is worthy of note that the Cleveland district alone contributed 3,170,000 tons towards the total, which is an increase of more than a quarter of a million tons upon the previous year's total. Lancashire and South Wales were the next most progressive districts, but we regret to observe that several of the Midland centres of the trade, including Staffordshire, Northamptonshire, and Shropshire, showed a substantial falling off in their production, which was doubtless attributable not so much to the exhaustion of local ores, as to the adverse economic conditions under which iron is produced in the Midlands. For instance, in South Wales and Cumberland the average output per furnace exceeded 36,000 tons, whilst in North and South Staffordshire the average fell to about 15,500, and in Shropshire to 7,787 tons. There would seem to be room for improvement in our local blast furnace plant, but smelters doubtless would like some assurance that the trade revival has come to

stay before they sink more capital in their industry. With respect to Bessemer and open-hearth steel, the only kinds for which statistics are available, the total production last year may be estimated round four million tons, of which nearly one-half consisted of Bessemer steel. The largest increase was in Cleveland, and next came the West (including Cumberland and Lancashire). It is noteworthy that, of a total of 1,815,842 tons of Bessemer ingots, no less than 1,357,581 were made by the acid process. In other words, we are producing times as much Bessemer steel by the acid as by the basic process. The output of steel rails increased by one-fourth as compared with the previous year, making a total of 817,476 tons. Nevertheless, the demand for rails still falls short of our great productive power. It is noteworthy, however, that our advance last year was most conspicuous particularly in the Cleveland and Scotch districts. Our total output of this steel for 1896 was over two million tons, which exceeds the maximum production of any other country. Both in pig-iron and wrought-iron industry, however, are not quite so satisfactory. I hope that the forthcoming quarterly meetings will bring to light indications of a more favourable character.—*Birmingham Post.*

THE PATENT LAWS.

DEPUTATION TO THE BOARD OF TRADE.

IN furtherance of the movement for the reform of the patent laws, initiated by the Manchester Chamber of Commerce, a deputation waited upon Mr. Ritchie, the President of the Board of Trade, on Thursday afternoon. The bodies represented on the deputation included the following:—Belfast Chamber of Commerce, Mr. J. Foster, M.P.; the Bleachers' Association, Mr. Frank Hard; Lancashire Calico Printers' Association, Mr. Neville Clegg; Lennox Lee; Manchester Association of Engineers, Sir W. H. B. Manchester Chamber of Commerce, Mr. W. H. Holland (president); Mr. Le Neve Foster, Mr. Ivan Levinstein, Mr. H. Grimshaw, and Helm (secretary); Bradford Chamber of Commerce, Mr. H. (president); Macclesfield Chamber of Commerce, Mr. C. (president). The deputation sought to show the enormous injury inflicted upon British industries by the ineffective character of section 22 of the Patents, &c., Act. This section is designed to ensure the granting of licences to the public by patentees, and the deputation demonstrated that, owing to its vagueness of language, a right of highly lucrative monopoly is unintentionally conferred upon foreign and in particular German—holders of British patents, at the cost of complete suppression of certain branches of manufacture in this country. Owing to the absence of Mr. Ritchie through indisposition the deputation was received by Sir C. Boyle.

ANDERSONIAN CHEMICAL SOCIETY.—The last meeting of the session was held on Friday 2nd inst. Professor A. Humboldt, F.R.S., F.C.S. occupied the chair, and Professor G. G. Henderson, M.A., D.Sc., delivered the closing address "Education of a Chemist." Professor Henderson read extracts from the report of the committee appointed by the London County Council to inquire into the teaching of chemistry in the London schools and colleges, and he pointed out the unanimous opinion of the most eminent teachers and manufacturers was that it was not necessary to study manufacturing details, or technical chemistry, as he soon picked up these in the course of his work. The student ought rather to devote more time to pure mathematics, and, if possible, original research. Dr. Henderson concluded by advising students to study for a degree if their time permitted, and urged all students of chemistry to qualify themselves by passing examinations of the Institute of Chemistry. The Chairman thanked Dr. Henderson for his address, and expressed his opinion that a student should spend as long a time as possible in qualifying himself there.

BOWMAN, THOMPSON, AND CO., LTD.—The report of the directors submitted to the shareholders at the recent annual general meeting in the Victoria Hotel, Manchester, states that during the year works have been fully employed, and are in the highest state of efficiency in every department. The agreement with Messrs. United Alkali Co., Ltd. and Messrs. Brunner, Mond, and Co. is now in complete operation, but the full effect of its benefits did not come into force until January 1st, 1897. After providing for charges and contingencies as are thought necessary, the net profit for the year is £24,764. 14s. 6d. Adding £5,000 to the depreciation fund—which will then stand at £20,000.—and after writing off a portion of the goodwill account, the directors recommend that £10,659. 12s. be applied to pay off the arrears of accumulated dividend and 7 per cent. for the year 1896 on the preference shares, and £3,530. 16s. to the amount of 2½ per cent. dividend for the year on the ordinary shares, leaving £1,637. 0s. 4d. to be carried forward. The directors retired by rotation were Messrs. H. S. Ferguson and R. L. Hallett, and they were re-elected.

The Patent List.

This is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of J. Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

Oxide for Motive Purposes. W. G. Heys. 7,343. March 22.
 ents, etc. E. O. S. Gentile and H. R. Gentile. 7,309. March 22.
 "Scurf" from Retorts. C. Billington, jun. 7,435. March 23.
 of Sewage and Collecting the Gases given off. E. Phillips. March 23.
 Consuming Appliance. J. Pearson. 7,455. March 23.
 Wool-washing Waste Liquors. T. Craig and A. E. Raper. March 23.
 Treatment of Zinc Ores, etc. E. A. Ashcroft. 7,532. Mar. 23.
 action. H. R. Cassel and B. C. Hinman. 7,555. March 23.
 Paper Pulp. J. Tait. 7,622. March 24.
 "Scurf" from Gas Retorts. C. Billington, jun. 7,686. March 25.
 tory Furnaces. Q. Rayner. 7,695. March 25.
 flouring Matters containing Sulphur. W. H. Clans and A. Rée. March 25.
 of the Alkalies or Alkaline Earths. J. & A. McGougan. 7,715. March 25.
 Alkaline Fluxes. W. J. May. 7,755. March 25.
 Fluxes for Iron and Steel Casting. W. J. May. 7,756. March 25.
 Fluxes. W. J. May. 7,757. March 25.
 Fluxes for Working Metals. W. J. May. 7,758. March 25.
 Smoke. W. C. Morrison. 7,786. March 25.
 Gas to Raise Steam. E. S. Higgins, H. A. Bessemer, and W. B. on. 7,858. March 26.
 re of Artificial Fuel. W. B. Hartridge. 7,936. March 27.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

ents in Processes and Apparatus for Reducing Metals from Ores, and for Obtaining Carbides, Acetylene, Cyanogen, Ies, Nitrides, and for Fixing Nitrogen. H. Maxim, Thurlow 377, Norwood-road, London. Eng. Pat. 1,905. January 27, 1896.

nciple involved is that of subjecting the materials to be treated on of a gaseous heating medium, which derives its heat from ombustion and the heat of electrical energy. If desirable, ical superheater can be made to revolve. The primary circular flue fixed in a furnace heated by the combustion of seous fuel. Leaving this furnace, the heated reaction gases gh the electrical superheater, which consists of two vertical packed with carbon blocks, fire clay, or other suitable

These are heated to a very high temperature by the passage tric current introduced through poles at the top and bottom ter. The reaction gases passing over the same are heated to ed temperature, and are ready to pass to the small furnace of urnace type which forms part of the plant. These heated introduced through a tuyere at the bottom of the furnace, top of which the material to be acted on is fed, through a d worm. Any excess of reaction gas and the gaseous products action escape by a pipe to a holder, and when of a suitable are drawn from thence as gaseous fuel for the primary heater. furnace is charged with lime, carbon and potash, magnesium, rding to the desired product. The reaction gases are also cordingly. Thus, to make illuminating gas and carbide, l hydrogen, or a hydrocarbon, are used, the oxygen of the ming CO, and the hydrogen combining with the electrically- rbon to form acetylene. For cyanogen compounds nitrogen ed, or, in conjunction with air, used to form nitrides. For res a reducing gas, such as carbon monoxide, is produced. In calcium carbide, limestone is used and carbon in sufficient convert the CO₂ as liberated into CO. There are six figures.

ments in and connected with Apparatus for the Manufacture ygen Gas. A. Sweetser, 67, Croxsted-road, Dulwich. Eng. Pat. 6,408. 23, 1896.

a modification of Patent 12,245/95. Instead of the oxygen substance being moved as required through the heating tube, itself is brought in successive portions over the lamp. The oated internally with asbestos paint, or other unoxidizable The gas is filtered through a cottonwool plug directly it

leaves the generator, thus preventing the clogging of the passages in the tap. The oxygen producing composition is in blocks, which are coated with asbestos paint, instead of asbestos paper. The saturator, if used, is placed in the generating apparatus instead of in the lamp. These are the chief improvements, which are illustrated by three drawings.

Improvements in or Relating to the Treatment of Fish and other Offal, or similar Refuse. The Fish Utilization Syndicate, Ltd., and J. C. W. Stanley, both of 31, Queen Victoria-street, London. Eng. Pat. 7,258. April 2, 1896.

The offal is boiled with water in a boiler fitted with a perforated screen below the level of the water. The oil which rises is run off, and when quite separated the water is returned by a drum pump to the boiler. After filter pressing, the oil is fit for soap-making, etc. The solid portions are moved by a spiral conveyor to one end of the boiler, and thence fall into the elevator tank, being lifted and discharged into a dryer. Leaving the dryer, the material is passed through a revolving screen. The sieved particles are bagged as fibre guano, while the larger portions are disintegrated and prepared as bone guano. There is one diagram.

Improved Method or Process for Treating Substances containing Nitrogen for the Manufacture of Ammonia. H. H. Lake, 45, Southampton-row, London (communicated by C. Pieper, 3, Hinderstrasse, Berlin). Eng. Pat. 28,199. December 9, 1896.

Six retorts are used, instead of one, for the usual dry distillation and subsequent so-called "steaming" process whereby the nitrogen in the remaining coke is converted into ammonia. All the retorts are connected, and the connections controlled by taps. Suppose one retort has just been charged, and is in the drying stage, *i.e.*, giving off steam at about 100°C. The second is in the distillation stage at 300°C. Also that the third, fourth, and fifth are coked and want steaming at 500°C, while the sixth is being emptied. The steam from No. 1 is passed through a superheater, and then into Nos. 5, 4, and 3, in this order, or in the reverse order, *viz.*, Nos. 3, 4, 5. The latter is preferable, as the contents of No. 3 being only just coked, are raised to 500°C. quicker by receiving the hottest steam first. An alternative "series connection" is described. The main advantage claimed is that, by this process, two-thirds of the main product are obtained direct and pure, which is not the case in any previous system of distillation.

An Improvement in the Treatment of Bay Salt. A. MacNab, 23, Great Winchester-street, London. Eng. Pat. 7,464. April 8, 1896.

The object is to separate the crystals into two grades. For this purpose they are fed into a rotating screen or sieve immersed in concentrated brine. The finer crystals pass through the sieve, and collect at the bottom of the brine receptacle, while the coarse crystals escape over the edges of the sieve. Both sets are then treated in the usual way.

A STORAGE BATTERY SUIT.—At Croydon County Court the case of the Chloride Electrical Syndicate, Ltd. v. Hurst, was heard recently before Judge Vernon Lushington. The plaintiffs in this action claimed £48 16s for electric storage batteries supplied and fitted. The evidence showed that an installation of the electric light was put into the defendant's residence by Mr. Mugford, a local electrician, and the plaintiffs were consulted as to providing accumulators. Mr. F. W. Crawter, plaintiff's London agent, saw Mr. Mugford, and an estimate was given, which was accepted by defendant. After the work had been done it was found that there was insufficient battery power for the defendant's requirements. The plaintiff's case was that they had properly executed all that was contracted for. Mr. Crawter stated that he had informed Mr. Mugford of the output of the dynamo, the power of the engine, and the number of lights in the house. He did not, however, tell him on what candle-power basis to form his estimate. So far as his (witness's) experience went, when nothing was mentioned in a contract or estimate as to the candle-power of the lights for which the current was required, it was understood that 8 c.p. lights were meant. After a lengthy hearing the judge decided that the plaintiffs undoubtedly undertook to put down a battery of accumulators for the defendant capable of supplying the necessary current to "20 lamps for six hours," and the question was whether this meant 20 lamps of 8 c.p. or 16 c.p. Nothing appeared to have passed between the parties to indicate which was meant. He was, therefore, compelled to look to the custom of the profession to assist him in coming to his decision. Mr. Crawter was intimately associated with the trade, and undertook to say that when nothing otherwise was stipulated with regard to the candle-power of the lamps, the standard accepted and understood would be an 8 c.p. basis. He should, therefore, accept this view, and give judgment for the plaintiffs.

MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of the Committee was held on Monday, at the offices in Mosley-street, Manchester, Sir J. T. Hibbert, presiding. The Chairman said he would like to say a word with regard to the work of the Committee, and particularly in reference to the tables in the report of the chief inspector showing the progress made with respect to the treatment of sewage. He was very pleased to know that they were not to have at present, and he hoped not in the future, a fight with Manchester. The Corporation had, he thought, shown a wise discretion in withdrawing the clause in their bill to which the Committee objected. Personally he sympathised very much with the difficulties of Manchester, and hoped that the Committee might be able to deal with Manchester in a conciliatory and considerate manner. Other Corporations and local authorities also had difficulties, and he hoped the principle of the Committee would continue to be one of fairness allied with moderation. He thought the Committee had made great progress in their work, both in regard to local authorities and manufacturers. In May, 1882, the sewage works in operation in connection with urban authorities numbered 27, and in January of this year the number had risen to 55. The works being constructed in 1892 numbered eight, and this year there were 22. The number of authorities in 1892 which had adopted no scheme was 24, while at the present moment there was only one authority in that position. These figures, he thought, showed very great progress. The difficulties of local authorities had been increased by the Local Government Board, which for a number of years had been undermanned; but a Reorganising Committee which had been sitting for the last two months had recommended a considerable increase in the number of inspectors, so it was to be hoped the same delays would not occur in future. The figures with regard to the manufacturers were very satisfactory. In 1893 the number of works with efficient purification plant was 45; the number now was 218. The number at which no treatment was adopted was 191 in 1893, and now was only six. Very few manufacturers had been proceeded against at law, and this showed that as a body they had been anxious to help the Committee in carrying out the duties imposed upon them. In conclusion he expressed the hope that members of the Committee would not be too thin-skinned in regard to remarks that were made about them from time to time, and that they would continue to carry out their work with firmness and moderation.

It was agreed to increase the salary of Mr. R. A. Tatton, chief inspector from £700. to £850.

Mr. J. P. Haslam submitted the treasurer's estimate for the ensuing year. A total of £3,696. would be required, as against £4,200. last year. The proportion to be paid by the Lancashire County Council was £1,232., by the Cheshire County Council £462., and by Manchester £924.

Mr. Alderman Southern said he could hardly take so sanguine a view of the future with reference to Manchester as the chairman did. Their difficulties had been deferred rather than settled. In fact, they seemed to him well nigh insoluble. Experiments no doubt were to be tried, but it seemed to him very doubtful whether processes which might be suitable for small areas would be efficient when applied to the case of Manchester. He suspected that the feeling entertained outside with regard to the work of the Committee was not quite so favourable as that entertained by the members of the Committee. Some means ought to be found by which the work of the Committee might be fairly tested in relation to the amount of expenditure it had brought about, and he would be glad if a return could be got out showing what had been spent on the 74 schemes now in operation and the estimated expenditure on the 80 schemes not yet completed. To that might be added what had been spent by the manufacturers. At the same time he would be glad to have a report showing the state of the rivers in 1892 and in 1897.

Dr. Hewitt said this was a matter with which they had really nothing to do; their business was to administer an Act of Parliament. They were not responsible for the expenditure of local authorities. Manchester, for example, had put up expensive machinery for pressing sludge, only to find that the effluent from the pressed sludge was worse than the average of the sewage.

Mr. Alderman Thompson, interposing, said they were forced by the Local Government Board to put up the pressing machinery.

Dr. Hewitt said that in any case the responsibility of expenditure did not lie with the Committee. They recognised, of course, the difficulties of the sewage problem, and were anxious to give authorities all the help they could. He did not agree with the remark made by Mr. Alderman Southern that what could be done for a population of 5,000 could not be done for a population of 500,000. No doubt in the case of a city like Manchester the problem was complicated by the manufacturers, but the problem was not an insoluble one. That was shown by the experience of Berlin, a city with a population of 1,600,000. The effluent from the Berlin sewage works was so good that the people who lived round about used to drink it till they were warned not to do so.

Mr. Alderman Hopkinson thought that the work done by the Chester Corporation was underestimated. It was surely something to take 2,000 tons of solid matter out of the sewage every week used to go free into the river. As to filtration, suitable land did not exist within reach of Manchester.

The Chairman said he would confer with Mr. Tatton as to whether it was possible to obtain the return suggested by Mr. Southern.

It was decided to ask Sir Henry Roscoe and Mr. Tatton to report as to the efficiency of the results obtained in the filtration of sewage by precipitation and artificial filtration.

Sir Henry Roscoe reported that during the past month he analysed 19 samples of sewage effluents from the sewage works authorities in the watershed. Of this number 11 were found good effluents, five fair, two unsatisfactory, and one bad. Satisfactory samples were obtained from the sewage works of the North and Knutsford Urban Councils, the bad sample being from the Timperley works of the Bucklow Rural Council.

The Clerk was instructed to write to each of the authorities pointing out that the Joint Committee require that they should steps to ensure the more efficient treatment of the sewage.

The Clerk was also instructed to write to the Corporations of Chester and Salford calling attention to the effluents from their works.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

THE Annual General Meeting of this section was held on April 2nd, at the rooms of the Chemical Club, Victoria. The Chairman of the section, Mr. Geo. E. Davis, presiding over gathering of the members, about 70 being present. The members were elected to serve on the committee during the session:—Messrs. Knecht, Levinstein, Liebmann, Rée, and On the motion of Mr. Grimshaw, seconded by Mr. Bell, a resolution was passed appointing a sub-committee to consider the revision of the general rules of the section. It was also decided that the first of the next meeting be devoted to the discussion of the papers read by Messrs. Lewkowitch and Liebmann.

Sir T. Wardle then read his paper on "The Adulteration of Silk." He treated the subject both from the chemical and industrial chemistry. As regards the former it was a case of misapplied rather than of chemistry. His historical review of the gradual growth of the use of weighting silk was most comprehensive and interesting, illustrated by numerous specimens and patterns. The silk was the first sinner as regards weighting, and the dyers followed with use of tannic acid, which swelled it when sold by the yard, chloride, iron salts, alum, and other chemicals, that made it when judged by weight. He showed how pure silk would burn a weighted silk positively could not because it was practically mineral matter. History and experiment both showed that we was distinctly of European origin, all old silk being fully degummed Mackay first described industrial weighting processes in 1763 extension far and wide of this practice on the Continent had resulted in the most serious depression and loss to the genuine silk industry he concluded that the sale of mineral matter as silk was a fraud as selling margarine for butter. The latter could be dealt under the Food and Drugs Act, and he urged that something be done on similar lines, perhaps through the Merchandise Marks Act for silk. He described, in an anecdote relating to the Admiralty tracts for black silk neckerchiefs, how twelve years ago the silk was so dyed and weighted that Jack struck, his neck being dyed black the silk frayed to pieces in a few months. Since then the Government have adopted a certain specification, with the result that at the year Jack's wife welcomes the old neckerchief, as there is of another seven or eight month's wear in it. Sir T. Wardle also much amusement by reciting how a certain German firm had patterns of fabrics that were guaranteed pure silks, which on nation proved to be as heavily weighted as all the artifices Continental dyers would allow. He thought there was a sound commercial opening for a firm to start in London the sale of genuine guaranteed silks, as they would find purchasers if the latter knew really good silk was to be had.

The Hon. Secretary (Mr. Carter Bell) then followed with a technical paper on "The Analysis of Silk." He said that in analysing the raw silk it was found that it generally contained 21 per cent. of a gummy substance, which must be removed before dyeing operations could take place. But this was always the case with the Chinese and Japanese silks, made within the last 10 days, showed that the Chinese and Japanese had not yet less fraudulent art of selling mineral matter for silk. It had been the French and Germans to carry this out to perfection. The process as described consisted in extracting the soap, &c., with solvent

with dilute hydrochloric acid, drying at 230°F., powdering, and estimating the nitrogen by combustion with soda lime. Tin com-
pounds were detected in the usual way by dissolving in strong hydro-
chloric acid, diluting and passing hydrogen sulphide gas, when the
precipitated, filtered, washed, and weighed as oxide after
A number of analyses were given, the highest and lowest
of weighted silk ranging between the following extreme per-

	I.	II.
Water	5.1	8.5
Ash	0.349	42.9
Silk	100.0	12.0

In case he had known was that wherein a French dyer had
succeeded in making 100 lbs. of silk into 1,000 lbs. in the dyeing
process. This particular silk gave 43 % ash, 9 % water,
10 % silk, and only 2 % of nitrogen. The only advantage he
found in this compound—for it was a misnomer to call it silk—was
that it was an incombustible dress for ladies; for it would be an im-
possibility for her to be burnt to death in such a dress. When such a
dress was raised to a high temperature, it did not flare up, but
simply melted away and left the original form intact, in many cases
retaining its beautiful silky lustre. But while silk weighted to 800 and 900 %
was easy to burn, certain black silks weighted up to 300 and 400 %
were known to take fire spontaneously. It was not so many years
ago that a fire broke out in the warehouse of a large silk mercer in Paris,
and afterwards found that it had originated in a parcel of black silk
which had been returned from the dye-house only twenty-four hours
after the explanation of the cause of the fire.

SPONTANEOUS COMBUSTION OF SILK.

In such circumstances was not yet discovered. But a desirable
result was not to keep large quantities of dyed black silk together,
but to get it dry, and, above all, to not expose it to any
excess of heat. This question of heavily-weighted silk was
the subject of attention of the insurance companies. The original reason
for the loss was a wish to make up the loss in original weight of the
silk by boiling off—a loss which amounted to 20 or 25 %; which
that a pound of 16 ounces was reduced to 12. In 1875 it
was found that the weighting was done to the extent of 100, 200, and
300, as a result of fierce competition, the weighting was done
to the extent of even 900 and 1,000 % until the substance was no
longer a mere conglomeration of a mineral matter, which was
the ruin of the silk trade of Great Britain and Ireland.

As a brief discussion, in which Messrs. Thomson, Grimshaw,
Ince, and Langdon took part. In replying, Sir Thomas
Stewart showed that the influences that caused the rotting of the
silk were being investigated now by many eminent colour chemists at
home and abroad. The lustre he thought persisted, and was not due
to treatment. At all events the microscopical appearance
was changed. English dyers did not weight silk to anything like
the extent in vogue on the Continent. They had to do so, more or
less, out of the keen foreign competition, but they refused to
weight to a certain weight, which they considered was a legitimate
weight. It was true that the fibre did regain a little of its strength
after the weighting process before using.

Mr. Cunliffe (the President of the Society), who was present,
in the name of thanks to Sir T. Wardle, which was accorded most
heartily, in response, he said he thought it was time public attention
was drawn to the matter, and if he had helped to do this by his paper
he was very glad. It gave him pleasure to do anything that
would lessen this evil, which was sucking away the vitality of

RAY SOCIETY.—A scientific society has been started in London
by the X-rays. Its basis is a broad one, and will include
all those interested in the physical as well as the scientific aspects
of the subject.

STATISTICS.—The Permanent Nitrate Committee announce
the following statistics of nitrate of soda:—Total exports to Europe,
1,000 quintals; loading for Europe, 1st April, 908,000 quin-
tals; Europe, March, 99,220 tons; and deliveries, Europe,
3,735 tons. Visible supply, Europe, 1st April, stocks and
620 tons.

IN v HARDMAN.—In the Probate Division, this week, be-
fore the Judge (Sir Francis Jeune), the case of *Hardman v Hardman*

This was a suit relating to the testamentary dispositions of
Hardman, chemical manufacturer, of Milton, near Stoke-on-
Netley Abbey, Chuddleton, Staffordshire, who died on
1896. The Court was asked to give judgment for a will
dated 17th, 1896, which was unopposed. Evidence was given
as to the due execution of the will, and that the deceased was of
sound mind at the time, and upon this his Lordship pronounced for the
testamentary disposition.

Parliamentary Jottings.

WATER GAS AND ITS DANGERS.

IN the House of Commons, last week, Mr. T. M. Healy asked the
Secretary of State for the Home Department whether he was
aware that the large English gas companies were now making large
quantities of water gas and turning it into the mains with coal gas, so
that some cases of gas poisoning had already occurred; and whether
any means would be taken to protect the public against the admixture
of this most poisonous substance with coal gas.

Sir M. White Ridley said he was not aware of cases of gas poisoning
had occurred from the cause suggested. If the hon. gentleman would
be good enough to favour him with any evidence he would cause
inquiry to be made.

Mr. Healy asked whether it was not the case that powers to raise a
loan had been refused to the Stockport Corporation on the ground of
this practice, and that the Stockport Corporation had been told they
must embody their proposals in a Bill to be presented to Parliament.

No reply was given.

PATENT OFFICE EXTENSION BILL.

On Monday, on the motion for the second reading of this Bill, the
Chancellor of the Exchequer (Bristol, W.) said it had been found
necessary to provide larger accommodation for the Patent Office, and
this Bill was to enable the land to be taken under the ordinary law in
the ordinary way.

Dr. Tanner thought the House should deal with these matters in an
economical spirit, and he therefore asked how much land was to be
purchased and at what price.

Mr. Akers-Douglas (Kent, St. Augustine) said the object of the Bill
was to acquire only the freehold interest in two houses for the purposes
of the extension. The sum to be paid would certainly not exceed more
than £9,000.

The Bill was then read a second time, and referred to a select
committee composed of five members, three to be nominated by the
House, and two by the Extension Committee.

Selected Correspondence.

THE CASTNER-KELLNER ALKALI COMPANY, LTD.

(To the Editor of the Manchester Guardian.)

Sir,—In the ample report you kindly gave last Tuesday of the first
annual meeting of this Company (*vide C.T.J.* 515, p. 238) some remarks
occurred made by me which I desire to qualify, since they may possibly be
construed by those who have read them in another sense than that
intended and understood by those who heard them. Describing the
situation of the new alkali works as in a rural part of the country, I con-
trasted the surroundings with the well-known centre of a long-established
and very extensive chemical industry identified with the town and
district of Widnes. The physical features of the latter neighbourhood
bore evidence of the effects produced through long years in the past of
processes not so perfect as those of to-day, and my intention in referring
to Widnes was not to imply that imperfect processes were now being
used or that noxious gases were constantly escaping at the present time,
but to assure our shareholders that we should endeavour to avoid, at any
cost, creating in the midst of rural scenery the appearance which Widnes
presents, owing to the marks not being yet entirely obliterated of im-
perfect processes and less stringent Acts of Parliament connected with
the chemical industry in past times.

My remarks, in an address intended for our shareholders only and
couched in conversational terms, might be construed to imply that the
prevailing condition at Widnes was detrimental to vegetation and health.
I had no such intention in making the reference to Widnes. I know
that a vast improvement has been made at Widnes in recent years by the
voluntary action of the present alkali manufacturers, assisted by very
stringent legislation, to prevent any serious injury from their manu-
factures either to vegetation or to the workpeople. It can only be from
accidental causes that any noxious gases could escape into the air (a
dark cloud of smoke does not necessarily indicate this), and the well-
known vigilance of the zealous and scientific Government inspectors
renders it almost impossible for such accidents to be of common
occurrence. The United Alkali Company is a notable example of a
great industry being carried on with constant care to conform to the
stringent Alkali Acts, and I should deeply regret if any remarks of mine
were construed to impugn the high character of that great Company
for the utmost solicitude in the public welfare in carrying on their
manufacturing operations.—I am, etc.,

WILLIAM MATHER,
Chairman of the Castner-Kellner Alkali Co., Ltd.

Manchester, April 3, 1897.

TABLES FOR USE IN AGRICULTURAL ANALYSIS.

ALL RIGHTS RESERVED.

(Concluded from p. 194.)

HAVING dealt first with the tables for nitrogen, ammonia, and albuminoids, then the three tables for potash, we now come last of all to the

PHOSPHATE TABLE.

This table gives the percentage of tribasic phosphate of lime, at sight, from the weight of magnesium pyrophosphate, as obtained by the well known citrate method, and includes the late Dr. Voelcker's correction ($+0.33\% \text{ P}_2\text{O}_5 = 0.72\% \text{ Ca}_3\text{P}_2\text{O}_8$) for the solubility of the ammonium magnesium phosphate under the following conditions:—

Example:—Two grammes of, say, a bone meal, were dissolved in dilute hydrochloric acid, ammonium hydrate was carefully added until the precipitate produced was just permanent. Two grammes of citric acid were added and the whole stirred. The precipitate did not redissolve, and acetic acid was added until the precipitate disappeared. Two grammes of powdered ammonium oxalate were added, and the whole boiled. The calcium oxalate was filtered off and carefully washed. The filtrate and washings, which did not exceed 200 c.c., were cooled, and 50 c.c. of ammonium hydrate (880 sp. gr.) carefully added, followed by 40 c.c. of magnesia mixture added slowly, drop by drop, with brisk stirring. After standing two hours the clear supernatant liquid was decanted through a Swedish 11 c.m. filter with the aid of the pump. When nearly the whole of the clear liquid was thus disposed of the filter was washed with dilute hydrochloric acid, the washings being

received in the beaker containing the precipitate. Hydrochloric acid was then added until the whole dissolved. The filter was washed with dilute ammonia and a sufficient excess of 880 ammonia; reprecipitate the whole of the phosphate, and make the whole ammoniacal. After standing half an hour with occasional stirring the filter was again attached to the filter pump, and the whole washed with dilute ammonia (1 $\text{NH}_4\text{HO} \cdot 880$ to 3 H_2O) until chlorides as shown by the nitric acid and silver nitrate test. The precipitate was dried, ignited to pyrophosphate, and weighed. It was 0.748 grms. after deducting the filter ash.

To use the table we find 0.74 down the left hand column opposite it, in column headed '008, we find 52.97% $\text{Ca}_3\text{P}_2\text{O}_8$ at

A table extended to tenths of a milligram would have occupied much space, but for the convenience of those with a weakness for fourth place of decimals, the following are the additional per cent for each tenth of a milligramme.

Grms. = '0001 '0002 '0003 '0004 '0005 '0006 '0007 '0008
Per cent = '0069 '0139 '0209 '0279 '0349 '0419 '0489 '0559

So that if the precipitate had weighed .7485 grms. we should add .0349% to the 52.97% already found in table, making 53.0049% practically 53.005%.

TABLE OF % $\text{Ca}_3\text{P}_2\text{O}_8$ ON $\text{Mg}_3\text{P}_2\text{O}_7$, OBTAINED FROM 2 GRMS. SAMPLE BY CITRATE METHOD (INCLUDING CORRECTION OF 0.33% FOR SOLUBILITY).

GRMS.	'000	'001	'002	'003	'004	'005	'006	'007	'008	'009
	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$	% $\text{Ca}_3\text{P}_2\text{O}_8$
.01	1.42	1.49	1.56	1.63	1.70	1.77	1.84	1.91	1.98	2.05
.02	2.12	2.19	2.26	2.33	2.39	2.47	2.54	2.61	2.68	2.75
.03	2.81	2.88	2.95	3.02	3.09	3.16	3.23	3.30	3.37	3.44
.04	3.51	3.58	3.65	3.72	3.79	3.86	3.93	4.00	4.07	4.14
.05	4.21	4.28	4.35	4.42	4.49	4.56	4.63	4.70	4.77	4.84
.06	4.91	4.98	5.05	5.12	5.19	5.26	5.33	5.40	5.47	5.54
.07	5.61	5.68	5.75	5.82	5.89	5.96	6.03	6.10	6.17	6.24
.08	6.31	6.38	6.45	6.52	6.58	6.66	6.72	6.79	6.86	6.93
.09	7.00	7.07	7.14	7.21	7.28	7.35	7.42	7.49	7.56	7.63
.10	7.70	7.77	7.84	7.91	7.98	8.05	8.12	8.19	8.26	8.33
.11	8.40	8.47	8.54	8.61	8.68	8.75	8.82	8.89	8.96	9.03
.12	9.10	9.17	9.24	9.31	9.38	9.45	9.52	9.59	9.66	9.73
.13	9.80	9.87	9.94	10.01	10.08	10.15	10.22	10.29	10.36	10.43
.14	10.50	10.57	10.64	10.71	10.78	10.85	10.92	10.99	11.06	11.13
.15	11.20	11.27	11.34	11.41	11.48	11.55	11.61	11.68	11.75	11.82
.16	11.89	11.96	12.03	12.10	12.17	12.24	12.31	12.38	12.45	12.52
.17	12.59	12.66	12.73	12.80	12.87	12.94	13.01	13.08	13.15	13.22
.18	13.29	13.36	13.43	13.50	13.57	13.64	13.71	13.78	13.85	13.92
.19	13.99	14.06	14.13	14.20	14.27	14.34	14.41	14.48	14.55	14.62
.20	14.69	14.76	14.83	14.90	14.97	15.04	15.11	15.18	15.25	15.32
.21	15.39	15.46	15.53	15.60	15.67	15.74	15.81	15.88	15.95	16.02
.22	16.09	16.15	16.22	16.29	16.36	16.43	16.50	16.57	16.64	16.71
.23	16.78	16.85	16.92	16.99	17.06	17.13	17.20	17.27	17.34	17.41
.24	17.48	17.55	17.62	17.69	17.76	17.83	17.90	17.97	18.04	18.11
.25	18.18	18.25	18.32	18.39	18.46	18.53	18.60	18.67	18.74	18.81
.26	18.88	18.95	19.02	19.09	19.16	19.23	19.30	19.37	19.44	19.51
.27	19.58	19.65	19.72	19.79	19.86	19.93	20.00	20.07	20.14	20.21
.28	20.28	20.35	20.42	20.49	20.56	20.63	20.69	20.77	20.84	20.91
.29	20.98	21.05	21.12	21.19	21.26	21.32	21.39	21.46	21.53	21.60
.30	21.67	21.74	21.81	21.88	21.95	22.02	22.09	22.16	22.23	22.30
.31	22.37	22.44	22.51	22.58	22.65	22.72	22.79	22.86	22.93	23.00
.32	23.07	23.14	23.21	23.28	23.35	23.42	23.49	23.56	23.63	23.70
.33	23.77	23.84	23.91	23.98	24.05	24.12	24.19	24.26	24.33	24.40
.34	24.47	24.54	24.61	24.68	24.75	24.82	24.89	24.96	25.03	25.10
.35	25.17	25.24	25.31	25.38	25.45	25.52	25.59	25.66	25.73	25.80
.36	25.87	25.94	26.01	26.08	26.15	26.22	26.29	26.36	26.43	26.50
.37	26.57	26.64	26.71	26.78	26.85	26.92	26.99	27.06	27.13	27.20
.38	27.27	27.34	27.41	27.48	27.55	27.62	27.69	27.76	27.83	27.90
.39	27.97	28.03	28.10	28.17	28.24	28.31	28.38	28.45	28.52	28.59
.40	28.66	28.73	28.80	28.87	28.94	29.01	29.08	29.15	29.22	29.29
.41	29.36	29.43	29.50	29.57	29.64	29.71	29.78	29.85	29.92	29.99
.42	30.06	30.13	30.20	30.27	30.34	30.41	30.47	30.54	30.61	30.68
.43	30.77	30.84	30.89	30.96	31.03	31.10	31.17	31.24	31.31	31.38
.44	31.45	31.52	31.59	31.66	31.73	31.80	31.87	31.94	32.01	32.08
.45	32.15	32.22	32.29	32.36	32.43	32.50	32.57	32.64	32.71	32.78

TABLE OF $\% \text{Ca}_3\text{P}_2\text{O}_8$ ON $\text{Mg}_2\text{P}_2\text{O}_7$, OBTAINED FROM 2 GRAMS SAMPLE.—(Continued.)

6	32.85	32.92	32.99	33.06	33.13	33.20	33.27	33.34	33.41	33.48
7	33.55	33.62	33.69	33.76	33.83	33.90	33.97	34.04	34.11	34.18
8	34.25	34.32	34.39	34.46	34.53	34.60	34.67	34.74	34.81	34.88
9	34.95	35.02	35.09	35.16	35.22	35.29	35.36	35.43	35.50	35.57
50	35.64	35.71	35.78	35.85	35.92	35.99	36.06	36.13	36.20	36.27
1	36.34	36.41	36.48	36.55	36.62	36.69	36.76	36.83	36.90	36.97
2	37.04	37.11	37.18	37.25	37.32	37.39	37.46	37.53	37.60	37.67
3	37.74	37.81	37.88	37.95	38.02	38.09	38.16	38.23	38.30	38.37
4	38.44	38.51	38.58	38.65	38.72	38.79	38.86	38.93	39.00	39.07
5	39.14	39.21	39.28	39.35	39.42	39.49	39.56	39.63	39.70	39.77
6	39.83	39.90	39.97	40.04	40.11	40.18	40.25	40.32	40.39	40.46
7	40.53	40.60	40.67	40.74	40.81	40.88	40.95	41.02	41.09	41.16
8	41.23	41.30	41.37	41.44	41.51	41.58	41.65	41.72	41.79	41.86
9	41.93	42.00	42.07	42.14	42.21	42.28	42.35	42.42	42.49	42.56
60	42.63	42.70	42.77	42.84	42.91	42.98	43.05	43.12	43.19	43.26
1	43.33	43.40	43.47	43.54	43.61	43.68	43.75	43.82	43.89	43.96
2	44.02	44.09	44.16	44.23	44.30	44.37	44.44	44.51	44.58	44.65
3	44.72	44.79	44.86	44.93	45.00	45.07	45.14	45.21	45.28	45.35
4	45.42	45.49	45.56	45.63	45.70	45.77	45.84	45.91	45.98	46.05
5	46.12	46.19	46.26	46.33	46.40	46.47	46.54	46.61	46.68	46.75
6	46.82	46.89	46.96	47.03	47.10	47.17	47.24	47.31	47.38	47.45
7	47.52	47.59	47.66	47.73	47.80	47.87	47.94	48.01	48.08	48.15
8	48.22	48.29	48.36	48.43	48.50	48.57	48.64	48.71	48.78	48.85
9	48.91	48.98	49.05	49.12	49.19	49.26	49.33	49.40	49.47	49.54
70	49.61	49.68	49.75	49.82	49.89	49.96	50.03	50.10	50.17	50.24
1	50.31	50.38	50.45	50.52	50.59	50.66	50.73	50.80	50.87	50.94
2	51.01	51.08	51.15	51.22	51.29	51.36	51.43	51.50	51.57	51.64
3	51.71	51.78	51.85	51.92	51.99	52.06	52.13	52.20	52.27	52.34
4	52.41	52.48	52.55	52.62	52.69	52.76	52.83	52.90	52.97	53.04
5	53.11	53.18	53.25	53.32	53.39	53.46	53.53	53.60	53.67	53.74
6	53.80	53.87	53.94	54.01	54.08	54.15	54.22	54.29	54.36	54.43
7	54.50	54.57	54.64	54.71	54.78	54.85	54.92	54.99	55.06	55.13
8	55.20	55.27	55.34	55.41	55.48	55.55	55.62	55.69	55.76	55.83
9	55.90	55.97	56.04	56.11	56.18	56.25	56.32	56.39	56.46	56.53
80	56.60	56.67	56.74	56.81	56.88	56.95	57.02	57.09	57.16	57.23
1	57.30	57.37	57.44	57.51	57.58	57.65	57.72	57.79	57.86	57.93
2	58.00	58.07	58.14	58.21	58.28	58.35	58.42	58.49	58.56	58.63
3	58.69	58.76	58.83	58.90	58.97	59.04	59.11	59.18	59.25	59.32
4	59.39	59.46	59.53	59.60	59.67	59.74	59.81	59.88	59.95	60.02
5	60.09	60.16	60.23	60.30	60.37	60.44	60.51	60.58	60.65	60.72
6	60.79	60.86	60.93	61.00	61.07	61.14	61.21	61.28	61.35	61.42
7	61.49	61.56	61.63	61.70	61.77	61.84	61.91	61.98	62.05	62.12
8	62.19	62.26	62.33	62.40	62.47	62.54	62.61	62.68	62.75	62.82
9	62.88	62.95	63.02	63.09	63.16	63.23	63.30	63.37	63.44	63.51
90	63.58	63.65	63.72	63.79	63.86	63.93	64.00	64.07	64.14	64.21
1	64.28	64.35	64.42	64.49	64.56	64.63	64.70	64.77	64.84	64.91
2	64.98	65.05	65.12	65.19	65.26	65.33	65.40	65.47	65.54	65.61
3	65.68	65.75	65.82	65.89	65.96	66.03	66.10	66.17	66.24	66.31
4	66.38	66.45	66.52	66.59	66.66	66.73	66.80	66.87	66.94	67.01
5	67.08	67.15	67.22	67.29	67.36	67.43	67.50	67.57	67.64	67.71
6	67.78	67.85	67.92	67.99	68.06	68.13	68.20	68.27	68.34	68.41
7	68.47	68.54	68.61	68.68	68.75	68.82	68.89	68.96	69.03	69.10
8	69.17	69.24	69.31	69.38	69.45	69.52	69.59	69.66	69.73	69.80
9	69.87	69.94	70.01	70.08	70.15	70.22	70.29	70.36	70.43	70.50
I 00	70.57	70.64	70.71	70.78	70.85	70.92	70.99	71.06	71.13	71.20
I 01	71.27	71.34	71.41	71.48	71.55	71.62	71.69	71.76	71.83	71.90
2	71.97	72.04	72.11	72.18	72.25	72.32	72.39	72.46	72.53	72.60
3	72.66	72.73	72.80	72.87	72.94	73.01	73.08	73.15	73.22	73.29
4	73.36	73.43	73.50	73.57	73.64	73.71	73.78	73.85	73.92	73.99
5	74.06	74.13	74.20	74.27	74.34	74.41	74.48	74.55	74.62	74.69
6	74.76	74.83	74.90	74.97	75.04	75.11	75.18	75.25	75.32	75.39
7	75.46	75.53	75.60	75.67	75.74	75.81	75.88	75.95	76.02	76.09
8	76.16	76.23	76.30	76.37	76.44	76.51	76.58	76.65	76.72	76.79
9	76.85	76.92	77.00	77.06	77.13	77.20	77.27	77.34	77.41	77.48
I 10	77.55	77.62	77.69	77.76	77.83	77.90	77.97	78.04	78.11	78.18
1	78.25	78.32	78.39	78.46	78.53	78.60	78.67	78.74	78.81	78.88
2	78.95	79.02	79.09	79.16	79.23	79.30	79.37	79.44	79.51	79.58
3	79.65	79.72	79.79	79.86	79.93	80.00	80.07	80.14	80.21	80.28
4	80.35	80.42	80.49	80.56	80.63	80.70	80.77	80.84	80.91	80.98
5	81.05	81.12	81.19	81.26	81.33	81.40	81.47	81.54	81.61	81.68
6	81.75	81.82	81.89	81.96	82.03	82.10	82.17	82.24	82.31	82.38
7	82.44	82.51	82.58	82.65	82.72	82.79	82.86	82.93	83.00	83.07
8	83.14	83.21	83.28	83.35	83.42	83.49	83.56	83.63	83.70	83.77
9	83.84	83.91	83.98	84.05	84.12	84.19	84.26	84.33	84.40	84.47
I 20	84.54	84.61	84.68	84.75	84.82	84.89	84.96	85.03	85.10	85.17
1	85.24	85.31	85.38	85.45	85.52	85.59	85.66	85.73	85.80	85.87
2	85.94	86.01	86.08	86.15	86.22	86.29	86.36	86.43	86.50	86.57
3	86.63	86.70	86.77	86.84	86.91	86.98	87.06	87.13	87.20	87.27
4	87.33	87.40	87.47	87.54	87.61	87.68	87.75	87.82	87.89	87.96
5	88.03	88.10	88.17	88.24	88.31	88.38	88.45	88.52	88.59	88.66
6	88.73	88.80	88.87	88.94	89.01	89.08	89.15	89.22	89.29	89.36
7	89.43	89.50	89.57	89.64	89.71	89.78	89.85	89.92	89.99	90.06

Trade Notes.

BRINE PUMPING COMPENSATION.—There are blessings in store for the broken down property owners of Northwich. Under the Brine Pumping (Compensation for Subsidence) Act, 1891, claims have been already sent in to the tune of over twenty-seven thousand pounds, and a nice little bill has just been received by all the brine pumpers. To say that they are simply delighted with the result of Parliamentary interference is perhaps putting the case a little bit too strong.

MESSRS. JULIUS HULSEN AND CO., of Newcastle-on-Tyne, advise us that they have opened a London Office at 11, Idol-lane, E.C. Mr. F. G. Marshall is in charge, and will promptly attend to any enquiries.

LEGACY TO PROFESSOR RAMSAY.—A legacy of £3,000. has been left to Professor Ramsay, Aberdeen University, whom failing, to his issue equally among them "per stirpes," by his uncle, the late Mr. Andrew Mitchell, Alloa. A legacy of £1,000. has also been left to the testator's "name son," Andrew Mitchell Ramsay, son of Professor Ramsay.

NOBEL'S WILL DISPUTED.—The heirs of the late Dr. Alfred Nobel have commenced legal proceedings to contest the validity of a will made by the deceased whereby nearly the whole of his realised property is to be converted into a fund, the interest from which is to be applied to prizes open to Scandinavians, as well as foreigners, for discoveries in the domain of physics, chemistry, physiology, and medicine.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are quiet. There is a fairly good inquiry for 50/90's at 2s. 3d. to 2s. 4½d., but 90's are slow at 2s. 5d. to 2s. 6d. Carbolic acids are firm in position and price, with perhaps an upward tendency—crude (60%) is quoted 2s. 6d., crystals (40%) 8d., and liquid 1s. 1d. Naphtha is steady—crude standing at 1s. 1d., and solvent 1s. 8d. Pitch has fallen, but considerable business has resulted at current value, which is 20s. to 23s. 6d., f.o.b. East Coast. Anthracene quiet. Creosote steady.

Sulphate of ammonia is down again. There has been more business doing, but not sufficient to relieve the market to any extent, so that prices have continued to fall. Closing values are:—Beckton £7. 12s. 6d., London outside makes £7. 15s., Liverpool £7. 15s. to £7. 16s. 3d., Hull £7. 15s., and Leith £7. 12s. 6d., all prompt.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali market there is a continued fair demand for export in all the principal products, and prices, as a whole, are well maintained. Ammonia alkali for home trade is held firm at £3. 7s. 6d., bags, f.o.r., but still offers at varying low prices for export. Caustic soda unchanged for spot or early delivery, at prices last reported, viz.: F.o.b. Liverpool, 77%, £9 5s.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6 2s. 6d., nett, 10-ton lots. Soda crystals and bicarbonate are in steady request. Chlorates have undergone a slight fluctuation in the past fortnight, but prices to-day may be taken at 3¼d. for potash, and 4¼d. for soda. For bleaching powder there is a better general inquiry for export, and business done at £6. 12s. 6d., hardwoods, f.o.b., and softwoods £6. 7s. 6d. per ton, f.o.r. makers' works. Sulphate of copper rather quieter, business being done at £17. 10s., f.o.b. For potash, caustic and carbonate, demand is good, and prices are well maintained. Vitriol and muriatic acids steady in price and demand. For saltcake there is more inquiry and business doing at 19s. to 20s. f.o.r. Sulphur firm at £4 12s. 6d. to £4 15s. bulk, f.o.r. In white powdered arsenic business is quiet but price firm, at £23. 15s. nett, f.o.b. Garston. Nitrate of soda stands at 8s. to 8s. 1½d. for spot and forward delivery. Acetate of lime, brown, more business doing and price firm at £5, c.i.f. U.K. ports; grey, £7. 15s. c.i.f. White, brown, and grey sugars of lead are quiet, but prices are steady. Acetate of soda, £13. 15s. to £14. Prussiate of potash rather easier at 5d. to 5¼d., according to make. Cyanide, 10½d. to 11d. for 98/100. Bichromate in steady request and without movement in price. Oxalic acid, 3½d. to 3¾d. Generally, trade for miscellaneous chemicals remains quiet.

REPORT ON MANURE MATERIAL.

The market continues to be unaccountably dull for the time reached, and, while manure manufacturers seem determined not to exceed their probable requirements, consumers are deferring their purchases as long as possible. The season is no doubt considerably later than was that of 1896, and this probably partly accounts for the prolonged inactivity.

The position of mineral phosphates is unchanged, and remain as last reported. There is no business to report in R bones afloat, and for shipment sellers ideas are much too high business to U.K. £3. 12s. 6d. per ton, ex-quay, would, not accepted for crushed Kurrahee bones arrived in Liverpool. East Indian bone meal £3. 15s. per ton is asked to arrive ordinary Bombay, ex-store, £3. 13s. 9d. per ton would be for shipment £3. 15s. per ton would be cabled out for fine meal, with prospect of business. Nitrate of soda is unchanged quotations being 8s. per cwt. for good, up to 8s. 3d. per cwt. quality.

LIVERPOOL OIL AND COLOUR MARK

WED.

OILS.—Palm oil is steady but quiet. There is very little doing except in soft oils at £19 10s. per ton. Olive continues demand, prices steady. There has been fairly good business Seville at £30. Candia and Malaga are offering at £31. Linseed is rather better, Liverpool makes in export casks, held for 15s. to 16s. per cwt., according to quality. There is in cottonseed, and Liverpool refined is now firmly held 15s. 9d. Castor oil is improved. With greater scarcity it has picked up, and sellers are now firm at 2¼d., having sold of good seconds Calcutta thereat. First pressure French is 2¼d. to 2½d. per lb. Tallow is quiet, with small sales of S. mutton at 18s. 4½d., ex-quay. Resin presents no change; firm and prices steady, especially for finer qualities. Spirits of are in moderate request at 21s. 3d. spot. Petroleum: American 5¼d. to 7d., and Russian refined 5¼d. to 5½d. p.

COLOURS.—Prices are steady, and practically without change. Ochres: Oxfordshire, common, £10., medium, £12., Derbyshire, common, 40s.; medium, 50s., best, 60s.; W. 90s., seconds, 50s., and common, 18s.; Irish, Devonshire 45s.; French, J.C., 65s. Umber: 40s. to 45s. White lead unchanged. Venetian red, £6. to £10. Copied oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. t.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet: Scotch warran 44s. 8d., Middlesbrough 40s. 0½d. cash, and hematite Copper easier: Chili bars, G. O.B.'s and G. M. s., closed £49. 5s. cash, and £49. 6s. 3d. to £49. 11s. 3d. three months: Straits closed at £60. 5s. to £60. 15s. cash, and £61. 7s. 6d. three months; Australian, £61. 15s. ingots, £64. 10s. Lead firm: Spanish, £11 16s. 3d. to £11 English, £11. 18s. 9d. to £12. Silesian spelter, ordinary to £17. 6s. 3d. Nickel, 1s. 2½d. Antimony, £30. 10 Quicksilver: First hands, £7. 5s.; second hands, £6. Copper shares quiet: Cape, 2½ to 2½; Copiapo, 1½ Libiola, 2½ to 2½; Mason and Barry, 2½ to 3; Rio Tin 26½; Tharsis, 5½ to 6.

HULL PAINT, OIL, AND COLOUR REF

T

OILS.—The situation in the oil market shows some improvement upon last week's quotations. There are large parcels of being constantly warehoused, therefore those who should have faith in a future improved market. The role of prophet, however, is a difficult one, for who would have anticipated such prices as have been ruling, which are hardly good prices for mineral oil, nothing of seed oils. The imports up to date have been as same time a year ago: Linseed, 147,859 quarters, against quarters; rapeseed, 37,368 quarters, against 15,767 quarters seed, 65,871 tons, against 58,226 tons; oilcake, 2,522 to 4,484 tons; olive oil, 975 tons, against 1,969 tons. Linseed firm: Spot 12s. 9d. to 12s. 10½d. per cwt.; forward, naked, bidding; May-August, 13s. 9d.; last four months paid. Boiled and refined £1 to £2. per ton extra. Refined quiet: Spot, naked, 12s. 9d. per cwt.; April, 12s. 10½d. May-August, 13s. 3d.; filtered refined £1. per ton extra. 11s. 7½d. per cwt., spot. Casks £1., and ordinary barrels per ton extra. Castor oil 3d. to 3½d. per lb. for Hime a oil: Calcutta, 4d. per lb. for first pressure. Olive oil at quote £32. per tun for Candia and Malaga oils. Oleines £16 to £18. 10s. per ton. Turpentine unchanged, Yorksh £8 to £9. per ton.

CAKES.—Linseed cakes: The demand is only moderate, are 2s. 6d. per ton dearer; 95% pure, £6. 12s. 6d. to £

£5. 12s. 6d.; Russians, £6. 5s.; Americans, £5. 17s. 6d. kees quiet but steady; Best makes, £3. 15s. to £3. 16s. 9d.; £3. 12s. 6d. to £3. 13s. 9d. Rape cakes unchanged.
S.—Makers continue very busy, there being a good inquiry home and foreign markets. White and red leads unchanged. cal colours, £3. to £8. per ton. Ready mixed paints, in per ton. Imperial black varnish, £5. 1cs. per ton. Paint 25s. per cwt. in bulk. Oak varnish, 5s. 6d. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

is a little more stir in the way of enquiry with regard to wants for the spring business, but with this exception chemicals are dull. There is particularly no orders for home consumption, which seems to be scantier than ever during the past week. Sulphur is at 10s. and its £5. price is on that account easily held. Sulphate has been giving way, and the quotation is now down to 10s. There are no other price changes, except in the case of Ammonia, which has continued leaky of value. The f.o.b. prompt quotation, to-day ranges between £7. 15s. and £7. 16s. 6d., but quite possibly there is a vendor here and there half a penny take even less than the £7. 15s.. Forward dealing still a little higher in the mineral oil and paraffin section of the market there are no changes to note. Lubricants and gas oils are the only lines with a little stir in them. Some makers are balancing books for the year. It is certain to be a very poor show.

Prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, 5s. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Tyne; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 68° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleach-er, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, 10s. and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 10s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; soda ash, 48° £4. 2s. 6d. nett, for Scotch and English deliveries (for f.o.b. Tyne, f.o.b. Glasgow); bichromate of soda, 3½d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); if potash, 5½d. less 5%, any port; nitrate of soda, 8s. 1½d.; sulphate of ammonia, £7. 15s. to £7. 17s. 6d. prompt, f.o.b., Tyne; ammoniac, first and second white, £35. and £33. nett; sulphate of copper, £17. 15s., less 5%, Liverpool; paraffin oil, 1½d. to 1½d., and soft, 1½d. per lb.; paraffin oil, semi-refined, 1½d. to 2d. per lb.; paraffin spirit, 6½d. per gallon; paraffin oil (burning) No. 1, 6½d., and No. 2, 6d., at Glasgow and other big centres, for Scotch buyers sales ½d. to ¾d. lower; ditto (lubricating) 865° £5. to 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. 10s. Exports of sugar at Greenock were nil.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals the business is fairly steady, and with the opening of the new year some improvement in the demand is anticipated. Prices, however, are unaltered. Soda crystals, £2. 12s. 6d. per ton, gross locally. Caustic, 76/77%, £9. 3; 70%, £7. 10s. per ton. Carbonate at £5. per ton. Soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 10s. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £6. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 10s. per ton, nett; do., 52%, £4. 15s. per ton, nett; soda ash, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. casks, £6. 5s. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton.

gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. 15s. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is unaltered at 9s. per ton f.o.b. Tees.

COALS.—The market is fairly steady, and there is a fuller inquiry for best Northumbrian steam. Coke continues in good demand for both home and export. To-day's quotations are: Best Northumbrian steam, 8s. 3d. to 8s. 6d. per ton; second qualities, 7s. 3d. to 7s. 6d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton; gas coals, 7s. 6d. to 8s. per ton; bunker coals, 7s. 3d. to 7s. 9d. per ton; household coals, 10s. to 11s. per ton; coke, 15s. to 16s. per ton.

New Companies.

Patent Silicate Manure Co., Ltd.—CAPITAL £5,000., in shares of £1. each. This company has been formed to adopt an agreement with B. and E. J. G. Piffard and M. S. McKay, to manufacture and sell patent silicate manures and all kinds of manures. Registered office, 48, Lime-street, London.

British Carbide Manufacturing Co., Ltd.—CAPITAL £100,000., in shares of £10. each. This company has been formed to supply and manufacture calcium carbide and acetylene gas. The subscribers to the memorandum of association are: A. A. Common, Eaton Rise, Ealing, engineer; J. S. Raworth, 46, Christchurch-road, S.W., C.E.; E. Ristori, 2, Halkin-street, S.W., C.E.; J. B. Batten, 52, Kensington Park-road, W., solicitor; J. E. Bingham, West Lea, Rammoor Park, Sheffield, electro-plater; J. F. Atkinson, Milton Works, Sheffield, manufacturer; R. A. Hadfield, The Grove, Sheffield, manufacturer; J. A. H. Drought, Conservative Club, S.W., gentleman.

Haley Composition Co., Ltd.—CAPITAL £6,000., in shares of £1. each. This company has been formed to acquire the Haley Composition Co., and to trade as manufacturers of paints for anti-fouling purposes, etc. Registered office, 36, Lime-street, London. The subscribers to the memorandum of association are: N. F. Jenkins, 36, Lime-street, E.C., shipowner; F. W. Jenkins, 36, Lime-street, E.C., shipowner; E. G. Jenkins, 36, Lime-street, E.C., merchant; C. E. Hudson, 36, Lime-street, E.C., engineer; J. F. Richardson, Burnside, Pinner, major-general, retired; A. W. Robertson, Engine Works, Royal Albert Docks, E., engineer; Mrs. D. B. Montefiore, Westbury Vicarage, Brackley.

Manchester Patent Fuel Works, Ltd.—CAPITAL £20,000., in shares of £1. each. This company has been formed to acquire land on Trafford Park Estate, near Barton, Manchester, and to trade as patent fuel and briquette manufacturers. Registered office, 18, Exchange-street, Manchester. The subscribers to the memorandum of association are: C. A. Grundy, 25, Ash-street, Harpurhey, Manchester, clerk; G. Mellors, 4, Oxford-terrace, Old Trafford, Manchester, C.A.; W. S. Coppock, 12, Half Moon-street, Manchester, share broker; E. J. Wallwork, 3, Lipper-street, Hulme, Manchester, cashier; W. F. Healey, 85, Northern-grove, Didsbury, Manchester, clerk; M. Stevens, 18, Exchange-street, Manchester, director of companies; W. S. Boddington, 1, Princess-street, Manchester, solicitor.

Clayton Aniline Co., Ltd.—CAPITAL £140,000. in shares of £5. each. This company has been formed to enter into an agreement with the company and its liquidator, and to manufacture and deal in benzol, aniline, and other coal tar products, acids, oils, soaps, and colours. The subscribers to the memorandum of association are: M. Baerlein, The Grange, Withington, Lancashire, merchant; W. Sumner, Butt Hill, Prestwich, Lancashire, merchant; W. J. Dornier, 1, Lancaster-road, Didsbury, Manchester, engineer; C. Dreyfus, Dickenson-road, Rusholme, Manchester, chemist; F. R. Hesse, 22, Parsonage, Manchester, merchant; J. Allpass, Belmont, Longsight, Manchester, secretary; F. J. Burt, Morningside, Clayton, Manchester, cashier.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending March 27th.

Acid—

59 pks. Little & Johnston
20 cts. A. & M. Zimmermann
14 cks. Thames S. T. & L. Co.

Acetone—

Holland, 1 ckt. G. Rahn & Co.
Germany, 30 drs. Domeir & Co.

Albumen—

France, £52 Mory & Co.

Alkali—

France, 30 drs. 48 c. J. Barber & Co.

Alum—

Holland, 4 cks. H. Johnson & Sons

Antimony Ore—

E. Indies, 133 lb. H. Grey, jun.

Japan, 6
Corsica, 60
Algeria, 140

Hunt & Kerr
Novelli & Co.
J. Hamber
H. Grey, jun.

Asbestos—

Germany, £9
— 18

Craven & Co.
Girard Bros.

Italy, 255	J. Barber & Co.	Fustic	B. Honduras, 350 t.	W. Shelcott	" 300 536	Robinson, Son & Co.	Stearine—	Holland, 25 cs.	H. Hill & Son
Barium Chloride—	Germany, 66 cks.	J. W. & T. A. Smith	" 4	Belize Est. & Produce Co.	" 250 250	Trier, Meyer & Co.	" 16 cks.	" 16 cks.	J. Owen
Barytes—	Germany, 111 cks.	W. Harrison & Co.	Gambler	Singapore, 2,321 pks.	Adamson, Gillfillan & Co.	" 500 500	Sulphur—	Italy, 150 t.	Cailler, Walker & Co.
Belgium, 250 bgs.	J. L. Lyon & Co.	" 224 bls.	Holland, 151 bgs.	Beresford & Co.	" 50 300	" 300 1,800	Talc—	E. Indies, 4504	A. B. Curtis & Co.
Holland, 106	W. Harrison & Co.	Singapore, 997	Indigo	Bellamy's Wf., Ltd.	" 5,649 17,415	" 5,649 17,415	France, 212	50 Carter, Paterson & Co.	Blackwell & Co.
Belgium, 34	J. L. Lyon & Co.	E. Indies, 15 chts.	" 342	Binny & Co.	Glue—	France, 498	Tartaric Acid—	Germany, 5 pks.	F. C. Devon & Co.
Bleaching Powder—	France, 24 cks.	J. Harrison	" 71	H. W. Jewsbury & Co.	Germany, 30	J. Harrison	Holland, 4	" 4	H. Lorenz
Boracic Acid—	Italy, 20 pks.	J. Knill & Co.	" 134	P. Macfadyen & Co.	U. States, 61	Craven & Co.	Ultramarine—	Holland, 17 pks.	Phillips & Graves
Bromine—	Germany, 20 cs.	A. & M. Zimmermann	" 31	Parsons & Keith	France, 10	B. & F. Wf. Co.	Belgium, 14	" 14	W. Harrison & Co.
Camphor—	Germany, 103 cs.	S. Figgis & Co.	" 62	T. Barlow & Bro.	Italy, 40	Kempton Bros.	Varnish—	U. States, 113 pks.	Allan Bros. & Co.
1 brl.	Burgoyne & Co.	" 8	U. States, 2	F. Huth & Co.	France, 70	Greenberg & Son	Verdigris—	France, 2 cks.	H. & F. Wf. Co.
Caoutchouc—	Penang, 86 c.	Butler's Wf., Ltd.	" 7	E. Cortes & Co.	Lamp Black—	U. States, 300 pks.	" 5 cks.	" 5 cks.	Blundell, Spence, & Co.
" 60	Prop. Bull Wf	Singapore, 200	" 24	Thomasset & Co.	Germany, 23 cks.	12 cs. L. & I. D. Jt. Co.	White Lead—	Belgium, 46 brls.	Leach & Co.
" 356	L. & I. D. Jt. Co.	" 32	Germany, 6 cs.	A. E. Piggott	" 14	F. Boehm	Holland, 10	" 96 cks.	T. & W. Farmlie
U.S., Col., 1	L. & I. D. Jt. Co.	Japan, 5	Belgium, 1	J. H. Schroder & Co.	Magnesia—	Beresford & Co.	" 10	" 10	Blundell, Spence, & Co.
E. Indies, 22	S. Figgis & Co.	" 54	E. Indies, 57	17 pks. Montgomerie & Co.	Belgium, 5 cks.	Hore & Scrivener	Belgium, 30	" 30	A. & M. Zimmermann
Castor Oil—	Italy, 30 cs.	R. Morrison & Co.	" 9	J. Kenyon & Sons	Germany, 14 t.	C. Hof & Co.	" 51	" 51	J. L. Lyon & Co.
" 20	Hodgkinson & Co.	" 10	" 8	E. Bower & Co.	Germany, 100 t.	F. W. Berk & Co., Ltd.	Wood Pulp—	Holland, 1,035 pks.	Moreton Coy. Ltd.
" 100	C. Windschuegl & Co.	" 18	" 10	Ernst Hansen & Co.	E. Indies, 25	C. Bauermeister	Norway, 4,304	" 4,304	E. J. & W. Goldsmith
" 12	A. & M. Zimmermann	" 16	" 14	Wallace Bros.	" 122	H. Lambert	Holland, 255	" 255	G. Rahn & Co.
" 15	G. S. N. Co.	" 14	" 5	H. Johnson & Sons	Methyl Alcohol—	A. Hunter & Co.	" 1,981	" 1,981	W. G. Taylor & Co.
France, 2 cks.	C. I. Parsons	" 13	" 13	Walker, Munzie & Co.	France, 30 dms	F. V. Tucker	Belgium, 1,994	" 1,994	F. Clayton & Co.
" 74 brls.	Mordaunt Bros.	" 23	" 16	Laughland, Mackay & Co.	Mica—	H. & G. Duffield	Germany, 800	" 800	H. Lambert
Caustic Potash—	Germany, 40 drs.	J. M. Steel & Co.	" 644	Croysdale & Co.	Germany, 435	W. M. Smith & Sons	Holland, 521	" 521	Phillips & Graves
France, 4	J. A. Reid	" 58	" 6	R. Von Glehn & Sons	E. Indies, 1,270	C. P. Gerhardt	Germany, 282	" 282	Christophersen, Andrews, & Co.
Chemicals (otherwise undescribed)	Germany, 455	L. & I. D. Jt. Co.	" 58	Ralli Bros.	U. States, 20	Knight & Morris	Zinc Oxide—	Holland, 40 brls.	M. Ashby, Ltd.
" 84	H. Lambert	" 127	" 127	Seton, Laing & Co.	" 20	" 20	" 40 brls.	" 40 brls.	M. Ashby, Ltd.
France, 125	Mory & Co.	" 111	" 111	Darling Bros.	Molasses—	Williams, Torrey & Co.	LIVERPOOL.	Week ending March 25th.	
Belgium, 35	O. Scholzig	" 644	" 644	Lewis & Peat	U. States, 103 cks.	603 c.	Acetic Acid—	Rotterdam, 17 balloons	
Holland, 12	F. Boehm	" 85	" 85	London & Hanseatic Bk.	Egypt, 364	2,200	Ammonia—	Zarate, 1 dm.	J. Nelson & Son, Ltd.
Belgium, 271	Société John Cockerill	" 303	" 303	H. J. Perlbach & Co.	U. States, 3	15	Barytes—	Antwerp, 15 cks.	70 bgs.
Melbourne, 280	L. & I. D. Jt. Co.	" 1,097	" 1,097	Elkan & Co.	Nitre—	Chili, 16,436 bgs.	Bone Ash—	B. Ayres, 198 bgs.	W. B. Dickson
France, 25	Prop. Hay's Wf.	Logwood	B. Honduras, 218 t.	Belize Estate & Produce Co.	Ochre—	U. States, 204 brls.	Caoutchouc—	Genoa, 1 cs.	R. Buisson & Co.
Holland, 27	Phillips & Graves	Myrabolams	E. Indies, 5,000 pks.	A. B. Curtis & Co.	Holland, 28 pks.	Phillips & Graves	Carbonic Acid—	Paris, 2 cs.	Seiss & Mowat S. S. Co., Ltd.
Germany, 36	H. Lorenz	Naphthaline	Belgium, 64 cks.	Elkan & Co.	Phosphate Rock—	Belgium, 150 t.	Chemicals (otherwise under.)—	Hamburg, 5 cs.	
" 198	A. & M. Zimmermann	Shumac	Italy, 200 bgs.	H. Johnson & Sons	Pitch—	Germany, 324 brls.	Cod Oil—	St. John, Nfld., 2 cks.	
" 13	P. Jantzen	Tanners' Bark	Natal, 13 t.	A. & W. Nesbitt	Plumbago—	Ceylon, 33 cks.	Cottonseed Oil—	New Orleans, 250 brls.	
Holland, 544	A. & M. Zimmermann	Valonia	U.S. Pacific, 24	R. G. Hall & Co.	Potassium Carbonate—	Germany, 40 c.	Cream of Tartar—	Bordeaux, 31 cks.	
France, 15	C. J. Parsons	Glucose—	A. Turkey, 122 t.	A. & W. Nesbitt	Potassium Chloride—	Holland, 29 cks.	Dyestuffs—	Annatto	Rotterdam, 1 bskt.
Germany, 64	Craven & Co.	" 2,200 2,200 c.	" 100 600	J. T. Lipton	Quicksilver—	Italy, 200 bts.	Argols	Patras, 9 brls.	
Belgium, 24	Leach & Co.	" 5,998 5,998	" 500 500	Pearce, Pelly & Co.	Rosin—	Spain, 5,600 flks.	Argols	Oporto, 41 cks.	
Cobalt Ore—	Australia, 182 t.	Sawer, Sons & Co.	" 150 900	W. Grose & Co.	Saltpetre—	Germany, 133 pks.	Starch—	Holland, 100 cs.	Phillips & Graves
" 27	J. Allen & Co.	Copper Sulphate—	France, 2 cks.	Forwood, Bros. & Co.	Soda—	Holland, 4,000 c.	" 200	Belgium, 200	F. Clayton & Co.
Cream of Tartar—	Italy, 53 cks.	Howard & Sons	Holland, 63 pks.	Kirkpatrick & Co.	Starch—	Holland, 100 cs.	" 20	U. States, 100 bks.	Lunham & Moore
France, 5	B. & F. Wf. Co.	" 10	W. C. Bacon & Co.	Cresoline—	U. States, 41 cs.	Lunham & Moore	Argols	Patras, 9 brls.	
Dextrine—	Germany, 50 bgs.	M. D. Co.	" 49	Prunk, Davis & Co.	Dyestuffs—	Italy, 10 cks.	Argols	Oporto, 41 cks.	
Dyestuffs—	Italy, 10 cks.	Union L. Co.	" 5 bgs.	Sperling & Williams	Argols	E. Indies, 200 bxs.	Argols	Oporto, 41 cks.	
Argols	Canaries, 5 bgs.	Sperling & Williams	" 355 355	W. E. Cole	Argols	Singapore, 1,121	Argols	Oporto, 41 cks.	
Argols	E. Indies, 200 bxs.	Brown & Elmslie	" 200 200	Robinson, Son & Co.	Argols	" 151 151	Argols	Oporto, 41 cks.	
Argols	Singapore, 1,121	J. Swire & Sons	" 151 151	J. Barber & Co.	Argols	U. States, 100 600	Argols	Oporto, 41 cks.	
Argols	E. Indies, 175 bgs.	R. G. Hall & Co.	" 14 127	J. Knill & Co.	Argols	Germany, 14 127	Argols	Oporto, 41 cks.	
Argols	U. States, 31 cks.	Rosenberg, Loewe & Co.	" 250 1,500	E. & T. Pink	Argols	" 1,266 1,557	Argols	Oporto, 41 cks.	
Argols	Denmark, 1	Bailey & Leatham	" 2 560 2,500	E. Thompson & Co.	Argols	" 2 560 2,500	Argols	Oporto, 41 cks.	
Argols	Italy, 60 brls.	Hoare, Wilson & Co.	" 2 560 2,500	E. Thompson & Co.	Argols	" 2 560 2,500	Argols	Oporto, 41 cks.	
Argols	U. States, 50	W. Burton & Sons	" 2 560 2,500	E. Thompson & Co.	Argols	" 2 560 2,500	Argols	Oporto, 41 cks.	
Argols	Denmark, 8 cs.	Tegner, Price & Co.	" 2 560 2,500	E. Thompson & Co.	Argols	" 2 560 2,500	Argols	Oporto, 41 cks.	

wood
N.S., 38 t. Barbierda
Island Co.
60 t. D. Midgley
& Sons
nac
300 bls. 1,280 bgs.
nia
918 bgs. G. E.
Spiropulo
1,040 Papayanni &
Jeremias
411
30 bgs.
2,400 sks. Cunard S. S.
Co., Ltd.
Chalk—
3 brls.
200 brls. T. M. Duche
& Sons
100
News, 200
re, 100
200 bls.
3 cs. Seine & Mersey
S. S. Co., Ltd.
180 bgs.
122
5 cks.
ne—
2 crts. J. T. Fletcher
& Co.
Oil—
2 brls.
ese Ore—
2,000 t. H. Rawcliffe
200 MacQueen Bns.
2,740 Darwen &
Mostyn Iron Co.
20 bgs. Seine & Mersey
S. S. Co., Ltd.
10 brls. Kennedy &
Biddle
2 brls. 1 cs. 3 dms.
73 pks. Bahr, Behrend
& Ross
31 tins R. J.
Francis & Co.
Scale—
600 brls. Thompson &
Bedford
175 Anglo-Am. Oil
Co.
3,500 bgs
500 J. T. Fletcher
& Co.
10 cks.
66 pks.
4 cs.
3,149 t. Matheson & Co.
Ga., 3,683 brls.
167 cs.
318 S. A. Acratopulo
2 brls.
3 bdls. G. W. Wheatley
& Co.
250 bxs. Weaver
& Steery
70
272
News, 8 175 brls.
350 bgs. G. Huntriss
& Co.
200 Geo. G.
Blackwell, Sons & Co.
itrate—
5,864 bgs. New
Pamarugal N. Co.
16,601 Primitiva
Nitrate Co.
20,363 G. C. Dobell
& Co.
200 bgs. T. M. Duche
& Sons
100

Antwerp, 200 cs. J. T. Fletcher
& Co.
Baltimore, 40
Rotterdam, 400 sks.
25 bgs. 80 cs.
Stearine—
St. John's, Nfld., qty. & 30 brls.
Antwerp, 13 cks.
Sulphur—
Catania, 150 t. 32 cks. 145 bgs.
Tallow—
New York, 500 hds.
Boston, 117 tcs.
St. John's, Nfld., 56 cks.
Newport News, 500 brls.
Baltimore, 75
B Ayres, 390 pps. 862 cks. 60 hds.
Tar—
St. Nazaire, 1 cs.
Tartar—
Naples, 2 cks.
Tartaric Acid—
Rotterdam, 4 cks.
Tin Ashes—
Genoa, 34 pks.
Treacle—
Boston, 800 brls.
Philadelphia, 500
N. O. leans, 600
Turpentine—
Hamburg, 1 btl.
Brunswick, Ga., 300 brls.
Varnish—
Boston, 11 bxs. W. H.
Staynes & Smith
Antwerp, 1 kg.
White Lead—
Rotterdam, 20 cks.
Wood Pulp—
Halifax, N.S., 4,137 bls.
Boston, 711 Spicer Bns., Ltd.
257
72 bdls
Zinc Oxide—
New York, 20 brls.
Rotterdam, 20 cks. J. Matthews
& Co.

MANCHESTER.

Week ending March 27th.

Acetic Acid—
Rotterdam, 20 cks. 17 blns.
Alizarine—
Rotterdam, 73 cks. 2 cs. 15 brls.
Ammonium Oxalate—
Rotterdam, 5 brls.
Aniline Colours—
Rotterdam, 29 cks. 4 cs.
Aniline Salts—
Rotterdam, 6 cks.
Antimony Fluoride—
Rotterdam, 10 cks.
Antimony Salt—
Rotterdam, 4 cks.
Barytes—
Antwerp, 7 cks. J. T. Fletcher
& Co.
200 bgs.
Rotterdam, 1 cs.
Betanaphthol—
Rotterdam, 1 cs.
Carbon Bisulphide—
Rotterdam, 1 btl.
Chemicals (otherwise undescribed)
Rotterdam, 2 cks.
San Domingo, 10 kgs.
Colours—
Rotterdam, 12 cks. 8 cs. 30 brls.
8 bxs. 10 pks.
Antwerp, 16
Boulogne, 6
Cream of Tartar—
Rotterdam, 14 cks.
Dextrine—
Hamburg, 37 bgs.
Gelatine—
Antwerp, 10 cs.
Glucose—
New York, 250 brls. T. M. Duche
& Sons
Rotterdam, 4 cks.
Glue—
Antwerp, 8 bls.
Treport, 5
Hamburg, 20 bgs.
Rotterdam, 4 cks. 17 cs. 50

Limestone—
Antwerp, 1 crte.
Logwood—
Savannahla Mar, 346 t.
Pitch—
Rotterdam, 12 cks.
Potassium Chloride—
Hamburg, 58 cks.
Pyrites—
Huelva, 1,595 t. Stott, Coker,
& Co.
Sodium Acetate—
Treport, 29 cks.
Sodium Nitrate—
Rotterdam, 21 cks.
Starch—
New York, 900 bgs. T. M. Duche
& Sons
1,672 sks.
Rotterdam, 290 cs.
125
Hamburg, 35 cks. 124
Tannic Acid—
Hamburg, 5 cks.
Tar Waste—
Rotterdam, 18 cks.
Tartar—
Hamburg, 10 kgs.
Tartaric Acid—
Rotterdam, 39 cks.
White Lead—
Rotterdam, 14 cks.
8
Wood Pulp—
New York, 300 bdls. Christie & Co.
San Domingo, 10 cs. 560 brls.
Fredrikshald, 1,250 bls.
Skien, 2,620
Zinc Ashes—
Antwerp, 8 cks.
Zinc Oxide—
Antwerp, 31 brls.
Rotterdam, 65

HULL.

Week ending March 27th.

Acetic Acid—
Rotterdam, 10 balloons Hutchinson
& Son
Acids—
Leghorn, 12 cks. Wilson,
Sons, & Co., Ltd.
Marseilles, 1
Albumen—
Reval, 5 cs.
Aluminium—
New York, 41 cs. Wilson,
Sons, & Co., Ltd.
Barytes—
Rotterdam, 44 cks. Hutchinson
& Son
Antwerp, 17 Bailey & Leatham
43 Sanderson & Co.
70 H. F. Pudsey
Bremen, 22 Sissons Bns. & Co.
Chemicals (otherwise undescribed)
Hamburg, 32 cks. Wilson,
Sons, & Co., Ltd.
Rotterdam, 6 pks. W. & C. L.
Ringrose
New York, 4 brls.
Marseilles, 16 cks. Wilson,
Sons, & Co., Ltd.
Antwerp, 23 pks.
Dunkirk, 143 8 dms.
Cod Oil—
Christiansund, 30 brls. Wilson,
Sons, & Co., Ltd.
Christiania, 15
Colours—
Hamburg, 10 cs. Wilson,
Sons, & Co., Ltd.
Rotterdam, 9 pks. Hutchinson
& Son
Antwerp, 1 cs. Storry, Witty,
& Co.
Rotterdam, 2 cs. Wilson,
Sons, & Co., Ltd.
Antwerp, 10 cks. Sons, & Co., Ltd.
12 pks.
Rotterdam, 201 W. & C. L. Ringrose
Cottonseed Oil—
New York, 200 brls. Wilson,
Sons, & Co., Ltd.
Oryolite—
Copenhagen, 5 cks. Wilson,
Sons, & Co., Ltd.

Dyestuffs—
Alizarine—
Rotterdam, 9 cks. W. & C. L.
Ringrose
4 brls.
Annatto—
Rotterdam, 2 bks. Hutchinson
& Son
Argols—
Bordeaux, 295 bgs. Wilson,
Sons, & Co., Ltd.
Shumac—
Marseilles, 10 bls. Wilson,
Sons, & Co., Ltd.
Farina—
Harlingen, 500 bgs. W. & C. L.
Ringrose
342 bls. Hutchinson
& Son
Glucose—
New York, 295 cks. 100 brls.
Glue—
Christiania, 5 bgs. Wilson,
Sons, & Co., Ltd.
Rouen, 12 cks. Rawson &
Robinson
Hamburg, 10 bgs. Sommerfeld &
Mead
Dunkirk, 34 cks. Wilson,
Sons, & Co., Ltd.
Lead Acetate—
Stettin, 29 cks. Wilson,
Sons, & Co., Ltd.
Limestone—
Antwerp, 4 pks. Wilson,
Sons, & Co., Ltd.
Minium—
Rotterdam, 18 cks. W. & C. L.
Ringrose
Ochre—
Rouen, 44 cks. Rawson &
Robinson
Hamburg, 1
Paint—
New York, 42 kgs. Wilson,
Sons, & Co., Ltd.
Pumice Stone—
Leghorn, 1 ck. Wilson,
Messina, 4 Sons, & Co., Ltd.
Saltpetre—
Antwerp, 135 bgs. Wilson,
Sons, & Co., Ltd.
Soap—
Marseilles, 3 cs.
Sodium Nitrate—
Caleta, 13,722 bgs. Nicks, Water-
house, & Sons
Buena, 13,722 bgs.
Starch—
Ghent, 148 cs. Wilson,
Sons, & Co., Ltd.
Antwerp, 140 Bailey & Leatham
80
New York, 250 bgs.
Bremen, 972 cs. Veltmann & Co.
Stearine—
Antwerp, 75 bgs. Wilson,
Sons, & Co., Ltd.
Tallow—
Dunkirk, 2 cks. Wilson,
Sons, & Co., Ltd.
Tartar—
Bordeaux, 11 cks. Rawson &
Robinson
Naples, 23 cks. Wilson,
Sons, & Co., Ltd.
Tartaric Acid—
Rotterdam, 4 cks. Hutchinson
& Son
Treacle—
New York, 1,650 brls. Wilson,
Sons, & Co., Ltd.
Ultramarine—
Rotterdam, 12 cks. Hutchinson
& Son
Bremen, 6
Varnish—
New York, 10 brls. Wilson,
Sons, & Co., Ltd.
White Lead—
Rotterdam, 39 cks. Hutchinson
& Son
Amsterdam, 47 W. & C. L. Ringrose
Wood Pulp—
Christiania, 220 bls. Wilson,
Sons, & Co., Ltd.
Zinc White—
Rotterdam, 25 cks. Hutchinson
& Son

GLASGOW.

Week ending April 1st.

Asbestos —		
Genoa,	70 pks. 5 cs.	
Barium Sulphate —		
Antwerp,	100 bgs.	
Barytes —		
Rotterdam,	44 bgs. J. Rankine & Son	
Hamburg,	12 cks.	
Bone Meal —		
Rotterdam,	508 bgs. J. Rankine & Son	
Iceland,	1,739 sks.	
Chemicals (otherwise undescr'd)		
Rotterdam,	2 cs. J. Rankine & Son	
Colours —		
Rotterdam,	13 pks. J. Rankine & Son	
Antwerp,	2 cks.	
Dyestuffs —		
Alizarine		
Rotterdam,	56 cks. 5 brls. J. Rankine & Son	
Aniline		
Rotterdam,	1 ck. 12 cs. J. Rankine & Son	
Cutch		
Rangoon,	1,950 bbs.	
Fustic		
Hamburg,	291 pcs.	
Logwood		
Black River, Ja.,	382 t. 8 c. Mucklow & Co.	
Wadder		
Rotterdam,	5 cks. J. Rankine & Son	
Shumac		
Palermo,	900 bgs. 100 bls.	
Farina —		
Delfsryhl,	250 bgs.	
Glucose —		
New York,	498 brls. 2 tcs.	
Glue —		
Rotterdam,	60 bgs. J. Rankine & Son	
Rouen,	46 cks. 45 cs. 30 bls.	
Guano —		
Iceland,	2,039 sks.	
Ochre —		
Rouen,	32 cks.	

Paraffin Wax—

Rangoon,	164 bxs. 480 bgs.	
Phosphate of Lime and Rock —		
Ghent,	2,040 bgs.	
Pitch —		
Hamburg,	70 cks.	
Plumbago —		
Genoa,	430 bgs.	
Potassium Bromide —		
Hamburg,	2 cs.	
Potassium Permanganate —		
Rotterdam,	3 cks. J. Rankine & Son	
Pumice Stone —		
Rotterdam,	11 cs. J. Rankine & Son	
Soap —		
Newport News,	50 brls. Wm. Houston	
11	136 Wm. T. Geldes	
Sodium Chlorate —		
Rouen,	12 cks.	
Sodium Nitrate —		
Rotterdam,	4 cks. J. Rankine & Son	
Starch —		
Rotterdam,	34 cs. J. Rankine & Son	
Sulphur —		
Catania,	250 bgs.	
Syracuse,	18 cks.	
Tallow —		
Hamburg,	3 brls.	
Treacle —		
New York,	200 brls.	
Boston,	50	
Ultramarine —		
Rotterdam,	10 cs. J. Rankine & Son	
Waste Salt —		
Hamburg,	100 bgs.	
White Lead —		
Rotterdam,	40 cks. J. Rankine & Son	
Wood Pulp —		
Hamburg,	555 bls.	
Christiania,	2,088 10 cs.	
Boston,	69	
Zinc White —		
Rotterdam,	160 cks. J. Rankine & Son	

TYNE.

Week ending March 27th.

Alum Earth —		
Hamburg,	45 cs. Tyne S. S. Co.	
Asbestos —		
Hamburg,	4 pks. Tyne S. S. Co.	
Barium Chlorate —		
Rotterdam,	350 bgs. Tyne S. S. Co.	
Barytes —		
Antwerp,	500 bgs. Tyne S. S. Co.	
Cod Oil —		
Drontheim,	7 brls.	
Bergen,	26	
Colours —		
Hamburg,	2 cs. Tyne S. S. Co.	
Minium —		
Rotterdam,	7 cks. Tyne S. S. Co.	
Pyrites —		
Huelva,	1,911 t. Tharsis Sulphur & Copper Co.	
Salt —		
Hamburg,	400 t. Clephans & Wiencke	
Soap —		
Rotterdam,	5 cs. Tyne S. S. Co.	
Starch —		
Rotterdam,	6 cs. Tyne S. S. Co.	
Yarnish —		
Antwerp,	5 kgs.	
Waste Salt —		
Hamburg,	170 t.	
White Lead —		
Antwerp,	20 brls. Tyne S. S. Co.	
Wood Pulp —		
Christiania,	300 bls.	
Laurvig,	230	
Zinc Oxide —		
Antwerp,	6 brls. Tyne S. S. Co.	

GOOLE.

Week ending March 24th.

Alizarine —		
Rotterdam,	107 brls. 2 cs.	
Alkali —		
Calais,	14 cks.	
Barytes —		
Antwerp,	100 bgs.	
Colours —		
Hamburg,	50 cks. 4 cs.	
Ghent,	1	

Dyestuffs (otherwise undescr'd)

Rotterdam,	275 cks. 67 cs.	
Boulogne,	18 3	
Farina —		
Hamburg,	100 bgs.	
Glucose —		
Hamburg,	24 cks.	
Logwood —		
Jamaica,	527 t.	
Phosphate —		
Ghent,	1,500 bgs.	
Potash —		
Rotterdam,	100 cks.	4 dms.
Antwerp,		30
Dunkirk,		1
Calais,		
Pyrites —		
Huelva,	1,338 t.	
Saltpetre —		
Rotterdam,	100 bgs.	
Hamburg,	2 cks.	
Starch —		
Ghent,	216 bbs.	
Tallow —		
Dunkirk,	140 cks.	
Tartar —		
Rotterdam,	6 brls.	
Hamburg,	10 cks.	
Waste Salt —		
Hamburg,	454 bgs.	
Wood Pulp —		
Rotterdam,	36 bls.	

GRIMSBY.

Week ending March 27th.

Barytes —		
Hamburg,	21 cks.	
Caoutchouc —		
Rotterdam,	2 cs.	
Hamburg,	8	
Colours —		
Antwerp,	24 cks. 1 cs. 31 pks.	
Hamburg,	20 6 50	
Rotterdam,	10	
Glucose —		
Hamburg,	16 cks.	
Plumbago —		
Hamburg,	1 ck.	
Starch —		
Antwerp,	20 cs.	
Wood Pulp —		
Malmö,	640 bls.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending March 31st.

Acetic Acid —		
Wellington,	10 cs. £22	
Acids —		
Calcutta,	1 cs. £52	
Bombay,	8 pks. 24	
Pl. Elizabeth,	20 40	
Cape Town,	43 42	
Fremantle,	6 10	
Ammonia —		
Ostend,	40 t. £330	
Calcutta,	18 cs. 3 c. 53	
Ammonia (Liquid) —		
Madras,	5 cs. £17	
Rio de Janeiro,	9 dms. 32	
B. Ayres,	5 10	
Ammonium Carbonate —		
Hioo,	5 cks. £32	
Cologne,	4 t. 4 c. 113	
Sydney,	55 cs. 77	
Melbourne,	10 16	
Algoa Bay,	4 11	
Paris,	1 27	
Ammonium Chloride —		
Christiania,	2 t. 8 c. £50	
Hamburg,	1 13 35	
Sydney,	1 1 34	
Cologne,	1 1 35	
Ammonium Sulphate —		
Colombo,	15 t. £120	
Ostend,	60 505	
Antwerp,	110 880	
Hamburg,	150 1,700	
Ghent,	46 375	
Gothenburg,	50 400	
Martinique,	137 7 c. 1,096	
Marseilles,	100 825	

Bremen,	100 850	
Las Palmas,	50 420	
Cullera,	202 6 1,620	
Cape Town,	2 17	
Arsenic —		
Boston,	15 t. £350	
Wellington,	3 20	
Timaru,	20 dms. 13	
Bisulphite of Lime —		
Calcutta,	1 t. 10 c. £27	
Borax —		
Rotterdam,	2 t. 10 c. £44	
Delagoa Bay,	11 10	
Carbolic Acid —		
Rotterdam,	48 cks. £940	
Co'ogne,	25 120	
Bombay,	50 dms. 19	
Santos,	47 14	
Shanghai,	4 cs. 15	
New York,	5 35	
Algoa Bay,	100 20	
Carbonic Acid Gas —		
Cape Town,	27 tubes £50	
Napier,	15 cs. 75	
Caustic Potash —		
Sydney,	4 cs. £16	
Caustic Soda —		
Melbourne,	18 c. £14	
E. London,	7 8	
Algoa Bay,	19 22	
Philadelphia,	187 t. 10 1,713	
Newcastle,	20 177	
Cape Town,	1 15 42	
Chemicals (otherwise undescr'd) —		
Perth,	10 kgs. 7 cs. £56	
Antwerp,	6 t. 10 c. 300	
Dunkirk,	10 400	
Santos,	7 19	
Calcutta,	17 21	

Karachi,	10 cks. 2 10	
Hioo,	67	
Kurrachee,	4 pks. 17	
Paris,	3 37	
Flushing,	1 15	
Halifax,	19 59	
Wellington,	14 20	
Bombay,	13 3 98	
Cape Town,	7 21	
Rotterdam,	14 10 c. 10 kgs. 253	
Algoa Bay,	4 cs. 17	
Adelaide,	28 pks. 70	
Fremantle,	18 36	
Madras,	5 41	
E. London,	2 10	
B. Ayres,	11 93 453	
New York,	8 26	
Hamburg, 26 dms. 6	3 166	
Melbourne,	12 bgs. 55	
Delagoa Bay,	20 cs. 34	
Citric Acid —		
Calcutta,	1 ck. £16	
Alexandria,	5 c. 37	
Copenhagen,	5 28	
Lisbon,	5 30	
Rotterdam,	1 t. 27 kgs. 27	
Brussels,	10 67	
Hamburg,	4 cks. 20 230	
Antwerp,	1 19 99	
Reval,	15 85	
Dusseldorf,	11 68	
Rangoon,	1 6	
Sydney,	5 29	
Coal Products —		
Alizarine		
Yokohama,	10 cks. £40	
Madras,	20 60	
Libau,	28 cs. 635	
Aniline		
Calcutta,	1 ck. £16	

Aniline Oil		
New York,	12 dms. £30	
Aniline Salts		
New York,	137 cks. £1,205	
Anthracene		
Cologne,	288 cks. £3,300	
Dusseldorf,	297 1,611	
Benzol		
New York,	5 dms. £10	
Rotterdam,	30 cks. 200	
Creosote		
Alicante,	4,100 brls. £2,150	
Huelva,	3,675 2,111	
Natal,	10 pks. 4	
New York,	1,000 cks. 450	
Creosote Salts		
Philadelphia,	606 bgs. £164	
Cologne,	1,274 273	
Naphtha		
New York,	1 dm. £10	
Natal,	20 10	
Wellington,	10 5	
Trepoint,	50 brls. 150	
Naphthaline		
Antwerp,	130 cks. £120	
Amsterdam,	8 15 bgs. 21	
Rotterdam,	19 252 10 bbs. 253	
Pitch		
Boston,	1,000 brls. 210 cks. £174	
St. Nazaire,	1,165 t. 1,170	
Dieppe,	100 157	
New York,	581 bgs. 150 200	
Halifax,		
Newport N.,	1,000 250	
Tamatave,	30 dms. 3	
Alexandria,		
Dunkirk,	1,501 t. 350 brls. 1,017	
Calcutta,	20 23	
Antwerp,	804 1,647	
Prussian Blue		
Amsterdam,	3 cks. £14	

Line Bases			Saltpetre—			Ammonium Sulphate—			Philadelphia, 13 3 402		
m ₁	12 brls.	£140	Algoa Bay,	11 c.	£13	New York,	40 t.	£360	Copenhagen,	1 5 32	
	12 cks.	165	New York,	1 t.	3	Ghent,	140 8 c.	2 q. 1,206			
			Lisbon,	5 9	30	Las Palmas,	51 10	424	China Clay—		
	2 brls. 35 dms.	£9				Valencia,	60 14	473	Barcelona,	200 bgs.	
k ₁	2 cks.	18	Salts of Lime—			Philadelphia,	20 4	175	Bombay,	80 cks.	
ay ₁	49	57	Brussels,	2 c.	£16	Santander,	1 4	3	Boston,	891	
oe ₁	265	34	Sheep Dip—			25 lbs.		11	Baltimore,	150	
N'fd ₁	30	36	Cape Town,	100 cs.	£280	Aniline Salt—			Philadelphia,	220	
on ₁	100 rmlts.	8	Algoa Bay,	11 t.	7 c. 190 dms.	Barcelona,	2 t. 1 c.	£185	Portland, M.	905	
	70	29	Calcutta,	102 pks.	110 70	Antimony Sulphate—					
			B. Ayres,	5 t.	225	Boston,	1 t. 6 c.	1 q. £162	Citric Acid—		
	31 cks.	£65	Silver Nitrate—			Copenhagen,	1 t. 1 q.	26 lbs £25	Vera Cruz,	4 c. 2 q. £22	
	10	7	Townsville,	1 cs.	£17	Arsenic—			Coal Products—		
	48 cks.	£240	Soda—			Bleaching Powder—			Aniline Co ours		
ducts (otherwise under.)			Melbourne,	1 t. 1 c.	£14	Baltimore,	78 cks.		Philadelphia,	5 cks.	
as,	25 brls.	£26	Fremantle,	1	8	Boston,	455	10 brls.	Portland, M.	1	
	2 pks.	9	E. London,	7	5	B. Ayres,	25 25		Melbourne,	1 cs. 2 kgs.	
Sulphate—			Rosario,	4	13	Colon,	15		Aniline Oil		
	40 t.	£650	Soda Crystals—			Havre,	15		Barcelona,	7 cks.	
	160 brls.	800	Cape Town,	2 t. 10 c.	£8	Iquique,	5		Boston,	13 dms.	
	12 c.	15	Soda Salts—			Lisbon,	24		Genoa,	2	
	12	214	New York,	8 t. 15 c.	£112	Maranham,	10		Philadelphia,	18	
	1	22	Brussels,	2	13	Nantes,	15		Aniline Salts		
Tartar—			Sodium Bicarbonate—			Newport News,	22		Alexandretta,	1 brl.	
Y ₁	10 c.	£41	Fremantle,	5 kgs.	£10	New York,	157 20		Genoa,	10 cks.	
yn ₁	1 t.	43	Nelson,	1 t.	8	Oporto,	30		Cresote Oil		
Bay,	3	110	Hiogo,	1	9	Para,	50		Lisbon,	300 brls.	
rch ₁	3 kgs.	14	Cape Town,	12 c.	7	Portland, M.	24		Pitch		
	5	21	Algoa Bay,	18	8	Rouen,	27		Galatz,	10 brls.	
	3	277	Hamburg,	11	5	Saltito,	66		Ibrail,	20 40 cks.	
	18	82	Auckland,	2 9	14	Boracic Acid—			Tar		
	3	12	Sodium Carbonate—			Rotterdam,	1 t. 2 c.	£33	Accra,	25 brls.	
ants—			Fremantle,	12 c.	£7	Borax			Galatz,	50	
e ₁	14 cs.	£16	Sodium Sulphate—			Huelva,	4 c.	£3	Philadelphia,	200	
20 pks.	13 cks.	30	Ghent,	100 t.	£200	Montreal,	3 t. 3	63	Copper Sulphate—		
	40	10	Strontia—			Alexandria,	1 10	5	Trieste,	20 t.	1 q. £351
	50	25	New York,	4 t. 15 c.	£100	Hamburg,	1 2	22	Calcutta,	5	70
	100	515	Sulphur—			Antwerp,	1 2	22	Brindisi,	21 17 c.	318
m ₁	6	16	Natal,	13 c.	£5	Danzig,	17	21	Havre,	2 2	34
n ₁	7	10	Lisbon,	250 brls.	£5	St. John, N.B.,	5 3	178	Odessa,	3 2	49
22	15	91	Algoa Bay,	13 145 kgs.	63	Sydney,	1	21	Barcelona,	7 2	130
m ₁	15	62	Colombo,	11	5	Calcium Chloride—			Ancona,	42 7 1	686
19	6	36	Otago,	1	5	Otago,	1 t. 3 c.	£2	Patras,	4 1 2	73
		70	Wellington,	1 10 c.	9	Odessa,	35 8	76	Rouen,	5 2 2	85
	159 t. 6 c.	£566	Sulphur Dioxide—			Carbolic Acid—			Hamburg,	10 2	169
y ₁	10 cs.	£7	Maryboro',	2 cs.	£35	Baltimore,	11 t. 9 c.	£655	Rotterdam,	5 1 2	94
m ₁	10	7	Sulphuric Acid—			Seville,	5	43	Cette,	153 14 3	2,670
			Albany,	1 t. 18 c.	£13	Copenhagen,	1 1 2 q.	67	Bordeaux,	107 1 3	1,770
			Hiogo,	5 cks.	8	Genoa,	19 3	66	Leghorn,	124 8 3	2,067
			Superphosphates—			New York,	3 15 45 cks.	700	Genoa,	313 4 1	5,166
			Cullera,	201 t. 10 c.	£450	60 dms. 55 cs.		6	Fiume,	37 18	604
			Martinique,	420	1,260	Colombo,	8	6	Venice,	320 10 1	5,042
			Tartar Salts—			Santander,	2	3 q. 95	Naples,	99 3	1,602
			Sydney,	11 c.	£12	Carbon Bisulphide—			Oporto,	34 17 2	579
			Madras,	4 c.	£28	Bahia,	7 c. 1 q.	£19	Boston,	47 6 3	805
			Cape Town,	2	13	Caustic Potash—			Bari,	124 2 3	2,005
			Delagoa Bay,	3	12	Otago,	6 c.	£9	Marseilles,	70 9 2	1,227
			Malta,	2	13	Caustic Soda—			Paris,	10 3	169
			Calcutta,	5 cs.	16	Alexandria,	111 dms.		Lisbon,	133 18 1	2,277
			Fremantle,	15	83	Antwerp,	50	33 cks.	Messina	1 17 1	32
			Adelaide,	10	55	Baltimore,	45		Cream of Tartar—		
			Wellington,	5	28	Barcelona,	40	5 brls.	St. John's, N'fd.,	2 c.	£9
			Perth,	5	30	Bombay,	220 127		Valparaiso,	2 3 q.	16
						Braila,	17		Disinfectants—		
						B. Ayres,	100		Calcutta,	5 t. 18 c.	1 q. £79
						Callao,	30		Bombay,	1 1	10
						Cartagena,	15		Kurrachee,	11	91
						Colon,	50		New York,	17	9
						E. London,	140		Rangoon,	1 5	9
						Geffe,	5		Iron Oxide—		
						Genoa,	90		Genoa,	1 t. 17 c.	2 q. £28
						Gothenburg,	50		Iron Sulphate—		
						Hamburg,	15		Valparaiso,	4 t.	£7
						Hong Kong,	40		Lime—		
						La Guayra,	10		Maranham,	1 t. 8 c.	£5
						Leghorn,	60		Pram Pram,	4	8
						Limassol,	10		Magnesia—		
						Malaga,	70		Vera Cruz,	4 bls. 2 c.	3 q. £13
						Malta,	6		Magnesium Chloride—		
						Messina,	20		Rangoon,	1 t. 8 c.	£6
						N. Orleans,	50		Magnesium Sulphate—		
						New York,	1,975 100	240	Portland, Or.,	50 kgs.	
						Odessa,	440		Manure—		
						Para,	20		Antwerp,	5 t. 6 c.	3 q. £29
						Philadelphia,	775		Bordeaux,	25 6	50
						Portland, O.,	187		Muriatic Acid—		
						Port Natal,	7		Pernambuco,	1 t. 2 c.	£13
						Rotterdam,	130		Ochre—		
						St. John, N.B.,	30		Para,	24 brls.	
						San Francisco,	475		Santos,	23	
						San Sebastian,	45		Santander,	20	
						Santos,	20		Oxalic Acid—		
						Seville,	80		Boston,	3 t. 4 c.	1 q. £88
						Sourabaya,	1,000		Naples,	4	7
						Sydney,	134		Paint—		
						Valencia,	25		Abonnema,	2 cks.	
						Chemicals (otherwise under.)—			Alexandria,	4 brls.	68 kgs. 20 dms.
						Hamburg,	12 c.	£15	Antwerp,		56
						Barcelona,	1 t. 10	40	Assinee,	40	
						New York,	9 9 3 q.	266	Banana,	1	
									Barcelona,	4	
									Boston,	1 cs.	
									Bucharest,	185	
									B. Ayres,	2	

Calcutta,	20	
Callao,	278	
Cape Town,	40	
Cienfuegos,	1	
Colombo,	6	
Colon,	6 crs.	53
Curacao,	81 pks.	
Fiume,		50
Genoa,	4 brls.	
Gd. Popo,	2 cs.	
Hamburg,	33 pks.	
Havre,	2	
Iquitos,	25	3
Lisbon,		1
Messina,	30	
M. Video,	36	
Naples,	2 cs.	
N. York,	2 brls.	100
Opobo,	2	8
Oporto,	1 cs.	10
Para,	7	
Pernambuco,	150	
Rotterdam,	1	20
St. John, Nfld.,	17	48
Santos,	2 cs.	250 pks.
Savannah,	175	
Sierra Leone,	102	2 cs.
Smyrna,	1	
Talcahuano,	4	
Trieste,	100 dms.	
Valparaiso,	200	8
Yokohama,	200	
Painters' Colours—		
Baltimore,	736 cks.	
B. Ayres,	190	155 cs.
Calcutta,	20	
Callao,		80
Cape Town,	1	42 kgs.
Colon,	20	17
Copenhagen,	20	
Danzig,		200 bgs.
E. London,	5 brls.	
Hamburg,		210
Havana,	2	3
Havre,	3	
Kentville,		5 cs.
Leghorn,	30	
M. ranch's,	26	2
M. Video,	20	20
Natal,	50	
Paraffin Wax—		
Bari,	20 bgs.	
Constantinople,	5 cs.	
Genoa,	32	
Lisbon,	150	
Naples,	3	
Palermo,	17	
Para,	20	
Syria,	5	
Trieste,	65	
Volos,	10	
Phosphorus—		
Tampico,	5 c.	£55
Kingston, Jam.,	2	28
Guadalajara,	5	55
Potash Salts—		
Quaymas,	6 t. 16 c.	£596
Boston,	5	280
Potassium Bichromate—		
New York,	2 t. 3 c.	£60
Potassium Chlorate—		
Naples,	1 t.	£33
Kobe,	2	10 c.
Rio de Janeiro,	7	14
Sydney,	5	170
Bari,	1	34
Melbourne,	3	120
Gothenburg,	3	120
Odessa,	2	80
N. castle, N.S.W.,	10	380
Osaka,	5	168
Shanghai,	4	140
Philadelphia,	17	605
Vera Cruz,	17	30
Boston,	15	592
Rotterdam,	2	11
New York,	70	2,398
Potassium Prussiate—		
Genoa,	2 t. 19 c.	£168
Salt—		
Abonnema,	20 t. 17 c.	
Algoa Bay,	8	18
Antwerp,	80	16
Asim,	200 bgs.	
Bakana,	50 t. 4	
Baltimore,	950	
Batanga,	13	
Boston,	500	
Calcutta,	2,944	
E. London,	51	11
Ghent,	90	
Halifax,	877	
Hensburg,	150	
Matadi,	11	8
Melbourne,	765	
N. Orleans,	130	

Old Calabar,	25	
Para,	875	
Pt. Elizabeth,	8	18
Portland, Me.,	155	
Pt. Natal,	100	
Rangoon,	345	
Rouen,	10	50 brls.
St. John, N.B.,	764	10
Salt Pond,	12	12
San Francisco,	50	
Savannah,	600	
Sierra Leone,	110	10
Sydney,	400	
Salt Cake—		
Sydney,	5 t.	£14
Baltimore,	979	743
Saltpetre—		
Parnahyba,	2 t. 5 c. 3 q.	£50
Maranham,	15	3
Marseilles,	232	3
Boca,	16	1
Sheep Dip—		
Portland, Me.,	6 c.	£10
Sydney,	40 t.	1,313
Baltimore,	3	14
B. Ayres,	20	13
Punta Arenas,	5	10
Soap—		
Aden,	50 brls.	
Alexandria,	15 bxs. 3 brls.	20 dms.
Algoa Bay,	2,025	30 cs.
Ambonia,	500	
Athens,	10	
Bangkok,	30	
Barbadoes,	1,100	
Bathurst,	181	
Belize,	375	
Bombay,	71	
B. Ayres,		25
Calcutta,	75	46
Callao,		4
C. C. Castle,	1,950	
Cape Town,	1,050	
Carbonear, Nfld.	20	
Colon,	20	1
Constantinople,		1
Copenhagen,	81	
Corunna,		1
E. London,	3,179	70
Genoa,	100	
Gibraltar,	112	
Gd. Canary,	758	
Guayaquil,	200	
Half Jack,	20	
Halifax,	2,293	
Hamburg,	496	
Havre,	44 crs.	2 cks. 450
Hong Kong,	100	
Iquitos,	50	
Karachi,	30	
Lagos,	407	
Madras,	11	
Malta,	70	35
Manaos,	325	
Melbourne,	2	
Melilla,	150	
M. Video,		20
New York,	240	3
Old Calabar,	566	181
Opobo,	640	
Palma,	224	
Para,	650	
Patras,	6	
Pt. Elizabeth,	700	25
Piraeus,	35	
Pt. Natal,	100	10
Pt. Said,		
Puerto Cortez,	40	
Quittah,	50	
Rangoon,	300	
Rotterdam,		620
St. John's, Nfld.,	490	21
St. Lucia,	150	
Salonica,	20	101
Shanghai,	2,589	
Singapore,	3,219	
Smyrna,		21
Teneriffe,	769	
Trieste,		1
Trinidad,	2,205	
Valparaiso,	210	
Warre,	220	
Soda—		
Maranham,		10 cks.
Soda Alkali—		
Barcelona,	150 brls.	
Galatz,	80	
Melbourne,	250 pks.	40
Odessa,		375
Tunis,		20
Soda Ash—		
Antwerp,	1,952 bgs.	
Baltimore,	1,200	98 tcs.
Barcelona,		14 cks.
Boston,	1,386	73
Brisbane,		180

B. Ayres,	60 kgs.	20
Calcutta,	40 brls.	
Copenhagen,	800 bgs.	
Freemantle,		34
Genoa,	500	
Hamburg,	175	30
Hio,		231
Leghorn,	50	
Melbourne,		262
New York,	3,038	85 tcs.
Philadelphia,	5,776	130
Piraeus,		70 brls.
Puerto Cabello,		3
Rio de Janeiro,	50	200
Rotterdam,	20	19
St. John, N.B.,	50	
San Francisco,		68 tcs. 192
San Sebastian,	50	
Santos,		20
Talcahuano,		100
Vera Cruz,		44
Yokohama,		484
Soda Crystals—		
Boston,		140 cks.
Halifax,	100 kgs. 50 brls.	
Oporto,		12
Philadelphia,		280
Portland, O.,	350	
St. John's, Nfld.,		10
St. John, N.B.,	80	10
Trinidad,	5	
Valparaiso,	50	
Sodium Bicarbonate—		
Alexandria,	10 brls.	
Algoa Bay,	37 kgs.	30 bgs.
Amsterdam,	24	
Arica,		2 cs.
Antwerp,	30	15 cks.
Bahia,		1
Bombay,		20 bgs.
Bordeaux,	10	
Brisbane,	175	
B. Ayres,	20	
Calcutta,	400	
Constantinople,	20	
Copenhagen,	20	3
Corvada,	50	
Galatz,	50	
Genoa,	60	10
Halifax,	185	
Hamburg,	45	2
Hio,	500	
Ibrail,	97	8
Konigsberg,	213	
Libau,	68	
Lisbon,	60	
Marseilles,	225	
Melbourne,	312	
Nagasaki,	200	
New York,	200	
Odessa,	40	
Paris,	190	10
Philadelphia,		420 bgs.
Rangoon,		6 cks.
Rockhampton,	40	
Rotterdam,		6
Rotterdam,	65	
S. John's, Nfld.,	150	
St. John, N.B.,	50	40 bgs.
Santander,	88	
Seville,		4 cks.
Stettin,	13	3
Sydney,	240	
Trieste,	30	8
Valencia,	30	
Valparaiso,	50	
Vera Cruz,	50	8
Yokohama,	1,450	
Sodium Bichromate—		
Genoa,	28 cks.	
Sodium Carbonate—		
Boston,	112 brls.	
New York,	252	
Sodium Chlorate—		
Boston,	500 kgs.	
Philadelphia,	25	
Sodium Hyposulphite—		
Brisbane,	40 kgs.	
San Francisco,	200	
Sodium Naphthionate—		
Genoa,	1 ck.	
Sodium Nitrate—		
Gd. Canary,	50 bgs.	
Sodium Prussiate—		
Boston,	24 cs.	
Sodium Silicate—		
Halifax,	5 brls.	
Sulphur—		
Boston,	50 t. 3 c.	£114
Boca,	1	1 q. 7
Lisbon,	1	16 3
Bahia,	2	14
Sulphuric Acid—		
Pernambuco,	3 c.	42

Superphosphates—		
Nantes,	97	7 c.
Castellon de la Plana,	100	
Bilbao,	49	4
Valencia,	141	6
Tin Crystals—		
Barcelona,	1 t.	14 c.
Varnish—		
Boma,		20 brls.
Ceara,		1 cs.
E. London,	3 crs.	1 dms.
Portland, Me.,	2 cks.	
Valparaiso,		12
White Lead—		
Bahia,	1 t.	3 c.
Lisbon,		3 cks.
Natal,		240 kgs.
New York,		50
Rosario,		6 cks.
Vera Cruz,		20
Zinc Chloride—		
Bombay,	2 t.	15 c.
MANCHESTER		
<i>Week ending March 31st.</i>		
Aluminium—		
Ghent,	1 t.	
Ammonium Sulphate—		
Antwerp,	467 bgs.	
Aniline Colours—		
Rotterdam,	6 kgs. 1 cs.	
Hamburg,	4	
Rouen,	1	
Aniline Oil—		
Antwerp,	8 dms.	
Rouen,	2	
Aniline Salt—		
Antwerp,	20 brls.	
Anthracene—		
Rotterdam,	37 cks.	
Carbolic Acid—		
Rouen,	248 brls.	
Chemicals (otherwise undesignated)		
Rotterdam,	10 kgs.	
Antwerp,	20 cks.	
Hamburg,	24	
Extracts—		
Copenhagen,	26 cks.	
Glue—		
Rotterdam,	20 cks.	
Rouen,	1 kg.	
Naphthol—		
Hamburg,	10 cks.	
Naphthol Salts—		
Rotterdam,	2 cks.	
Naphthylamine—		
Rotterdam,	28 cks.	
Paraffin Wax—		
Hamburg,	10 cs.	
Pitch—		
Cette,	880 t.	
Salt—		
Rotterdam,	168 t.	
Tallow—		
Rotterdam,	13 cks.	
Tar Oil—		
Antwerp,	8 dms.	
Tar Salts—		
Stettin,	162 bgs.	
Toluol—		
Hamburg,	74 cks.	
Zinc Chloride—		
Rouen,	6 brls.	
HULL.		
<i>Week ending March 27th.</i>		
Ammonium Sulphate—		
Dunkirk,	386 bgs.	
Ghent,	1,798	
Asbestos—		
Libau,		17 pks.
Bleaching Powder—		
Stettin,	100 cks.	
Chemicals (otherwise undesignated)		
Amsterdam,	71 cks.	20 brls.
Antwerp,	1 cs.	25 pks.
Bordeaux,		20
Bergen,		10
Bremen,		1
Christiania,	7	3

gen,	25	5	10 pks.
m,	20	10	526
arg,	1		5
t,	23		
arg,	4		
k,	30		
m,	6	78	
	3		
	28		
ed Oil—			
um,	1,607 c.		
t,	650		
t,	101		
t,	231		
ia,	97		
arg,	10		
t,	255		
m,	752		
t,	378		
t,	20		
m,	299		
s (otherwise undescr.)			
arg,	5 cks.		
	1 cs.		
	3		
m,	3 bgs.		
	150 t.		
Oil—			
t,	100 c.		
t,	36		
ia,	245		
ia,	404		
gen	106		
sund,	105		
m,	95		
t,	343		
tr,	93		
	158		
gen,	101 t.		
um,	6		
	350		
Colours—			
am,	17 cks.		
t,	56	26 cs.	
t,	1	26 dms.	
ia,	6		
gen,	45		
sund,	5		
m,	29		
arg,	1		
t,	4		
t,	29		
tk,	54		
um,	10		
	58		
	5		
	21		
	385 t.		
nia,	2 cs.		
agen,	20 cs.		
lam,	21 cks.		
urg,	3		
lm,	25		
lam,	17 cks.		
d	13		
sim,	11		
t,	25		
t,	6		
t—			
p,	8 cks. 1 cs. 22 dms.		
agen,	2		
cin,	6		
burg,	1		
urg,	1		
lam,	1		
g—	3 cks.		
tp,			

GLASGOW.

Week ending April 1st.

nia—	
ium Sulphate—	£26
t,	101 t. 7½ c.
t,	95 17
ad,	49 19½
ja,	280 8

Asbestos—	
Nagasaki,	£44
Boracic Acid—	
Barcelona,	£29
Yokohama,	187
Borax—	
Sydney,	£38. 11s.
Ottawa,	45 14
Christiania,	18
Caustic Soda—	
Barcelona,	4 t. 3¼ c.
Chemicals (otherwise undescr.)	
Christiania,	£8
China Clay—	
Bahia,	8 t. 10½ c.
Coal Products	
Aniline Salts	
Lisbon,	£45
Creosote Oil	
U.S.A.,	£103
Hamburg,	10 t. 10 c.
Christiania,	15
Naphtha	
Havre,	32 t. 17 c.
Pitch	
Spain,	£973
Hamburg,	14 t.
Gothenburg,	315
Leghorn,	760
U.S.A.,	48
Havre,	420 t.
Coal Products (otherwise undescr.)—	
Rotterdam,	£699
Stockholm,	236
Hamburg,	35
Dextrine—	
U.S.A.,	31 t. 2½ c.
Extracts—	
Canada,	£123
Farina—	
Rio de Janeiro,	2 t. 16¼ c.
Gelatine—	
New York,	£1,012
Nova Scotia,	73
U.S.A.,	586
Guano—	
Malaga,	24 t. 12¼ c.
Linseed Oil—	
Barbadoes,	1 t. 5¼ c.
Guayaquil,	2
Kingston,	3 2½
Melbourne,	2
Gibraltar,	19¼
Hiogo,	1
Litharge—	
Montreal,	£72
Logwood—	
Canada,	£52
Lisbon,	88
Manure—	
Kingston, Jam.,	10 t.
Paint—	
Yokohama,	£42
Guayaquil,	32
Melbourne,	£27. 15s.
New York,	675
Townsville,	21
Havana,	78
Painters' Colours—	
Melbourne,	£29
St. John's, N'd.,	qty.
Singapore,	213
Sydney,	519
Gibraltar,	"
Hiogo,	131
Paraffin Wax—	
Valencia,	£100
Barcelona,	400
Lisbon,	435
Rotterdam,	8
Potash Salts—	
Savannah,	2 t.
Potassium Bichromate—	
Barcelona,	£138
Sydney,	102
Hamburg,	206
Rotterdam,	198
Genoa,	162
Lisbon,	85
Amsterdam,	196
Christiania,	16
Potassium Prussiate—	
U.S.A.,	£639
Rosin Oil—	
Rotterdam,	£12
Salt—	
Sydney,	5 t.
Calcutta,	2 2¼ c.

Soap—	
Shanghai,	3 t. 5¼ c.
Trinidad,	10 17½
Singapore,	2 9½
Sodium Bichromate—	
Canada,	11 c.
Genoa,	7 t. 6¼
Sodium Peroxide—	
Victoria,	£26. 13s.
Starch—	
Rio de Janeiro,	£55
Rotterdam,	2 t. 11 c.
Sulphuric Acid—	
Penang,	£21
Tallow—	
Rotterdam,	8 t. 5 c.
Treacle—	
Stockholm,	24 t. 16 c.
Cape Colony,	2 10
E. London,	1 10
Bergen,	8 19
Christiania,	18 3
Varnish—	
Tokyo,	£21
Yokohama,	£32. 10s.
White Lead—	
Sydney,	£40

TYNE.

Week ending March 27th.

Alkali—	
Rotterdam,	3 t. 1 q.
Amsterdam,	11 16 c. 3
Christiania,	1 14
Gothenburg,	5 7 2
Ammonium Sulphate—	
Santos,	15 t. 18 c.
Antimony—	
Hamburg,	10 t.
Antwerp,	1 4 c.
Rotterdam,	7
Gothenburg,	1
Barium—	
Rouen,	11 t. 5 c.
Barium Carbonate—	
Rouen,	23 t.
Barytes—	
Genoa,	20 t.
Bleaching Powder—	
Hamburg,	10 t. 2 c. 1 q.
Antwerp,	10 15
Rotterdam,	6 4 1
Copenhagen,	1 10 1
Amsterdam,	24 3
Christiania,	2 3
Gothenburg,	45 9 1
Bergen,	16 1
Carbolic Acid—	
Odense,	14 c.
Caustic Soda—	
Harlingen,	10 t. 10 c.
Seville,	33 17
Hamburg,	11 6 1 q.
Antwerp,	20 18
Genoa,	30 9 1
Santos,	8 14
Rotterdam,	14 10 1
Horsens,	1 9
Odessa,	13 1
Christiania,	4 18
Gothenburg,	22 15 1
Chemicals (otherwise undescr.)	
Odessa,	12 t. 10 c. 1 q.
China Clay—	
Copenhagen,	10 t. 6 c.
Fluor Spar—	
Gothenburg,	55 t. 11 c.
Lamp Black—	
Antwerp,	2 t. 9 c. 2 q.
Linseed Oil—	
Genoa,	5 t. 1 c.
Litharge—	
Rotterdam,	1 t. 10 c.
Magnesia—	
Hamburg,	1 t. 1 c.
Antwerp,	2
Genoa,	5
Rotterdam,	1
Copenhagen,	2 1 q.
Odessa,	5
Manure—	
Frederikshavn,	150 t.
Paint—	
Hamburg,	1 t.
Antwerp,	3 12 c.
Genoa,	1 6 1 q.

Soap—	
Genoa,	3 q.
Soda—	
Hamburg,	2 t. 3 c.
Genoa,	3
Randers,	19 13 2 q.
Svendsborg,	6
Aalborg,	2 13 3
Amsterdam,	31 3
Arendal,	1 9 1
Thisted,	10 15 2
Soda Ash—	
Antwerp,	12 t. 1 c. 3 q.
Genoa,	15 cks.
Christiania,	10 t. 6 1
Gothenburg,	5 9 1
Sodium Hyposulphite—	
Antwerp,	2 t.
Sodium Silicate—	
Seville,	10 t. 6 c.
Gothenburg,	1 14 1 q.
Sodium Sulphate—	
Copenhagen,	5 t.
Gothenburg,	210
Sulphur—	
Gothenburg,	130 t.
Tallow—	
Genoa,	2 q.
Tar—	
Wyk Auf Fohr,	4 t. 5 c.
Copenhagen,	10 10 3 q.
Treacle—	
Copenhagen,	7 lbs.
Turpentine—	
Genoa,	1 q.
White Lead—	
Copenhagen,	3 t. 9 c. 3 q.
Zinc Oxide—	
Odessa,	1 t.

GOOLE.

Week ending March 24th.

Benzol—	
Rotterdam,	195 cs.
Chemicals (otherwise undescr.)	
Ghent,	3 cks.
Hamburg,	40
Harlingen,	1 cs.
Rotterdam,	24
Coal Products (otherwise undescr.)—	
Antwerp,	150 cks.
Boulogne,	38 1 dm.
Ghent,	9
Hamburg,	1
Rotterdam,	81
Colours—	
Antwerp,	5 cks.
Boulogne,	2 1 cs.
Ghent,	7 1 dm.
Rotterdam,	8
Dyestuffs (otherwise undescr.)	
Ghent,	25 cks.
Rotterdam,	150 bgs.
Manure—	
Antwerp,	250 bgs.
Dunkirk,	457
Ghent,	854
Pitch—	
Antwerp,	345 t.
Soap—	
Antwerp,	5 cks.

GRIMSBY.

Week ending March 27th.

Alkali—	
Hamburg,	20 cs.
Chemicals (otherwise undescr.)	
Dieppe,	2 cks.
Malmö,	15
Coal Products (otherwise undescr.)—	
Dieppe,	56 cks.
Colours—	
Hamburg,	8 cks.
Glue—	
Dieppe,	1 ck.
Manure—	
Hamburg,	10 bgs.
Pitch—	
Antwerp,	68 cks.
Soap—	
Dieppe,	12 cs.
Varnish—	
Dieppe,	10 brls. 1 cs.

PRICES CURRENT.

WEDNESDAY, APRIL 7TH, 1897.

Prepared by Messrs. HIGGINSBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt.	5/10½	8/9
Glacial	"	40/-	
Arsenic S.G., 2000	"	1	4 0
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salt), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1½
Oxalic	nett	0	0 3½
Phosphoric, 1750°	"	0	0 11½
Picric	"	0	0 11
Sulphuric (fuming 50%)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 165°)	"	3	0 0
" 150°	"	1	5 0
(free from arsenic, 145°)	"	1	7 6
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2½
Tartaric	"	0	1 0
Arsenic, white powdered	nett per ton	23	15 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	2 6
Aluminogenic	"	2	3 6
Aluminium (ingot metal 98.99%)	nett per cwt.	7	17 6
Ammonia, Anhydrous	per lb.	0	1 3
" 880=28° B.	"	0	0 2½
" 24° B.	"	0	0 1¼
Carbonate	nett	0	0 3
Muriate	per ton	18	7 6
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	33/-
Nitrate	per ton	33	0 0
Phosphate	per lb.	0	0 4½
Sulphate (grey) London	per ton	7	15 0
(grey) Hull	"	7	15 0
Aniline Oil (pure)	per lb.	0	0 8
Aniline Salt	"	0	0 7¼
Antimony	per ton	31	0 0
(tartar emetic)	per lb.	0	0 9
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	7	0 0
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	42/6	to 65/-
Bleaching Powder, 35%	nett	6	7 6
Liquor, 7%	"	3	10 0
Bisulphide of Carbon	"	12	0 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	2 6
China Clay (at Dunoon) in bulk	"	15/-	to 30/-

Coal Tar Products and Dyes:—

Alumina (artificial) 90%	nett per lb.	0	0 7
Magnesia	"	0	3 8
Anthracene, 30% & f.o.b. London	per unit per cwt.	0	0 8
Isosol, 90%	per gallon	0	2 6
100%	"	0	2 4½
Carbolic Acid (pure 60%)	per gallon	0	2 6
(crystallized 40%)	per lb.	0	0 8
(liquid 65/67%)	per gallon	0	1 2
Cresol (ordinary)	"	0	0 2
(distilled for Lucigen light)	"	0	0 2½
Crude Naphtha 50% @ 180° C.	"	0	1 1
(Crude Oil, 24° Tw.	per ton	2	15 0
Pitch, f.o.b. Liverpool or Ganton	"	1	3 0
Solvent Naphtha, 60% at 180°	per gallon	0	1 8
Copper	per ton	49	3 9
Sulphate	"	17	10 0
Oxide (copper scales)	"	44	10 0
Hyposulphite (crystal)	"	37	10 0
(distilled S.G. 1.430)	"	70	0 0
Iodine	nett, per oz.	0	0 9
Sulphate (crystallized)	per ton	1	10 0
Sulphide (autonomy slag)	"	2	0 0
(sheet) for cash	"	13	2 6
Litharge Flake (ex ship)	"	14	15 0
Acetate (white)	"	23	0 0
(brown)	"	15	10 0
Charcoal (white lead) pure	"	10	15 0
Nitrate	"	1	0 0

Lime, Acetate (brown) (ex ship)	per ton	5	0 0
(grey) (ex ship)	"	8	7 6
Magnesium (ribbon and wire)	per oz.	0	2 1
Chloride (ex ship)	per ton	2	7 6
Carbonate	per cwt.	1	17 6
Calcined Magnesia	per ton	9	0 0
Sulphate (Epsom Salts)	per ton	2	15 8
Manganese, Sulphate	"	16	0 0
Borate	per cwt.	2	10 0
Ore, 70%	per ton	3	10 0
Methylated Spirit, 61° O.P.	per gallon	0	1 8
Naphtha (Wood), Solvent	"	0	2 7
Miscible, 60° O.P.	"	0	2 8

Oils:—			
Cotton-seed	per ton	15	10 0
Linseed	"	16	0 0
Petroleum, American	per gallon	0	0 6¼
Stearine	per ton	19	10 0
Phosphorus (yellow)	per lb.	0	2 2
(red)	"	0	2 8
Potassium (metal)	per oz.	0	3 7
Bichromate	nett per lb.	0	0 4½
Carbonate, 90% (ex ship)	per ton	17	10 0
Chlorate	per lb.	0	0 4
Cyanide, 98%	"	0	0 11½
Hydrate (Caustic Potash) 90%	per ton	24	0 0
(Caustic Potash) 75/80%	"	20	15 0
(Caustic Potash) 70/75%	"	19	15 0
Nitrate (refined)	per cwt.	1	1 6
Permanganate	per cwt.	3	17 6
Prussiate Yellow	per lb.	0	0 5½
Sulphate, 90% (ex ship)	per ton	9	15 0
Muriate, 80% (do.)	"	8	10 0
Silver (metal)	per oz.	0	2 4½
Sodium (metal)	per lb.	0	2 1
Carb. (refined Soda-ash) 48%	nett per ton	4	15 0
(Caustic Soda-ash) 48%	"	4	5 0
(Carb. Soda-ash) 48%	"	4	0 0
(Alkali) 58%	"	3	17 0
(Soda Crystals)	"	2	5 0
Acetate (ex-ship)	"	13	10 0
Arsenate, 45%	"	15	0 6
Chlorate	per lb.	0	0 4½
Borate (Borax)	net, per ton	17	0 0
Bichromate	per lb.	0	0 3¼
Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	"	0	5 0
(74% Caustic Soda)	"	0	2 6
(70% Caustic Soda)	"	7	2 6
(60% Caustic Soda)	"	6	2 6
(pure liquor 90° Tw.)	"	3	15 0
77/78% powdered (99% hydrate)	"	13	10 0
Bicarbonate	"	6	10 0
Hyposulphite	"	5	5 0
Manganate, 25%	"	15	0 0
Nitrate (95%) ex-ship Liverpool	per cwt.	0	8 0
Nitrite, 98%	per ton	30	0 0
Phosphate	"	12	0 0
Silicate (glass)	per ton	4	10 0
(liquid, 100° Tw.)	"	3	10 0
Stannate, 40%	per cwt.	3	2 9
Sulphate (Salt-cake)	per ton	0	19 6
(Glauber's Salts)	"	1	7 6
Sulphide	"	6	15 0
Sulphite	"	5	0 0
Strontium Hydrate, 100%	"	8	0 0
Sulphocyanide Ammonium, 95%	per lb.	0	0 6¼
Barium, 95%	"	0	0 0
Potassium	"	0	0 0
Sulphur (Flowers)	per ton	7	10 0
(Roll Brimstone)	"	6	10 0
Brimstone: Best Quality	"	4	10 0
Superphosphate of Lime (26%)	"	2	1 0
Tallow	"	18	0 0
Tin Crystals	per lb.	0	0 4½
English Ingots	per ton	64	10 0
Zinc Spelter	"	17	0 0
Chloride (solution, 100° Tw.)	"	5	0 0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

17.

SATURDAY, APRIL 17, 1897.

Vol. XX.

Contents.

PAGE	PAGE
..... 265	Tar and Ammonia Products 272
ottings 266	Miscellaneous Chemical Market 272
panies 266	Report on Manure Material 272
..... 267	Liverpool Oil and Colour Market 272
est Complete Speci- 267	The Metal Markets 272
..... 267	West of Scotland Chemicals 272
ports for March 267	Hull Paint, Oil, and Colour Report 273
wage Scheme 267	Tyne Chemical Report 273
Compensation 268	New Companies 273
..... 268	Imports 273
stent Law Abuse 271	Exports 276
..... 272	Prices Current 280

ADVERTISEMENT.

ST, Ph.D., F.I.C., with thorough training capital, desires to join a firm of Chemical Manufacturers in the ownership preferred.—Apply, "Nitro," *Chemical Trade Journal* ter.

Notice.

Communications for the *Chemical Trade Journal* should be sent by Cheques and Post Office Orders made payable to—

BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

of Subscription, commencing at any date, of the *Trade Journal*,—payable in advance,—including postage to all parts of the world, are as follows:—

(52 numbers) 12s. 6d.
early (26 numbers) 6s. 6d.
rly (13 numbers) 3s. 6d.

are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Communications for the Editor, if intended for insertion in the *Journal*, should reach the office not later than **Tuesday** before the issue.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and give only the names of the persons, and in all cases give their names, not necessarily for publication. Sketches should be sent on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, Wants, and Specific Articles for Sale by Private Contract are accepted in the *Chemical Trade Journal* at the following rates:—

Words and under 2s. 6d. per insertion
in addition to words 6s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

Words and under 1s. 6d. per insertion
in addition to words 6s. 3d.

Advertisements, Announcements in the Directory columns, and all Advertisements, are charged at the Tariff rates, which will be forwarded on request.

WASTED ENERGY.

THE opinion was expressed in these columns some time back that since the water power at Niagara Falls had been broken in, as it were, and gave every promise of running quietly in harness, it would be found that the chemical and allied industries would gradually move towards this district.

On this side there have been many heartburnings as to the probable effects of the extension of the chemical industry in the States upon the future of the home industries, and many reasons have been put forward to explain why American developments are worthy of serious consideration. The majority of these are well enough in their way, but it is obvious that one of the best ways of combating competition is to seek similar sources of cheap power in this country.

The British Aluminium Company have afforded the chemical industry a valuable object lesson. They have done what we shall have to do. From their report for the past year we learn that they are acquiring more water power in Wales and elsewhere, and so great is its importance that the chairman actually went so far as to say that if they had not water power they could do nothing, which is no trifling admission.

Knowing this, then, there is another point to which we would draw attention, and particularly the attention of Local Authorities. When Foyers Falls were captured there was a scare and outcry about the destruction of public scenery, accompanied by a lot of "music" in the same key. It has all sunk into silence, however, and the Falls are still there to delight the hearts of tourists.

This, coupled with the knowledge that the acquisition of water power on just terms without undue let or hindrance is a matter of vital importance to our industrial growth and the maintenance of our much-vaunted supremacy, should exercise a powerful influence on those who are prone to play the dog in the manger.

The recent action of the Weaver Navigation is typical of a spirit which is not worthy of emulation. The beauty of a fall is in no wise diminished by the fact that the water is actuating a turbine on the lower level, but its grandeur is certainly lessened if it so be that the energy, which is the essence of its nobility, is being squandered to no purpose through the little mindedness of those who should know better. The taint of such paltriness does more to detract from the natural beauty of the falls than a dozen turbines. There are also other and more potent reasons why this question of encouraging the use of natural water power should be handled in no meagre spirit. It is not merely a case of likes and dislikes, for, in such a period of competitive strife, the matter becomes one of necessity. When it has been shown that success or failure may depend on access to water power, it is strange economy that says—you must not use it, we like to "look" at it. For fatuity such a course is only equalled by the miser who starves rather than diminish by one groat the

visual feast his hordes afford. The result in both cases is the same—starvation—and then others come and reap the benefits.

This search for cheap power is going on everywhere, so much so that even now a scheme for utilizing the vast-water power of the Nile is under serious consideration. With ample power, Egyptian cotton might lay the foundation of an industry *in situ*, and others would follow. Such a prospect will hardly be welcome to this country, yet we persist in hankering after false sentiment. How false, it will perhaps be as well to show.

Leaving Foyers and all our own insignificant falls in this country, we will take that idolised river the Rhine. Surely if anything be worthy of preservation for beauty's sake it is this river. And to judge by its undiminished popularity its world-famed sights are in no danger of extinction or disfigurement. Yet let this stolid fact be laid to heart. These waters—that wash crags crowned with castles and noble ruins, and whose surface is kissed into ripples by winds that breathe romance—these waters are also trained to the service of the dozens of turbines that yield power at no less than eleven electric stations or factories, including even a chemical works. Some of these are not more than fifty yards from the immortal falls themselves.

Will the sacred Nile, then, be less sacred because its inert power is turned into work? *Labore est orare* is the one vital principle that our thin-skinned, lily-loving æsthetes have entirely forgotten in laying their foundations of belief, and its absence has already made the walls of their flimsy edifice crack and gape.

How much more, then, should we pay greater heed to the development of resources that are at our own doors? One of the falls on the Rhine where turbines are placed is less than 2 ft. in roof.

Perhaps the anti-smoke societies will confer with the Anti-quoted Water-wasting Societies, and point out the benefits that attend the use of such power. One station on the Rhine supplies thirty works with power, to the suppression of smoke and other gaseous pollution. No doubt, however, the followers of A. W. W. Societies are so fond of things antiquated that they prefer a hole in the roof to a modern grate and chimney.

PERSONAL.—Mr. John Andreae, who has been associated with the Roessler & Hasslacher Chemical Company for the past year, has returned to his home in Frankfort, Germany. Mr. Andreae is a son of one of the directors of the Gold and Silber Scheider Anstalt at Frankfort. He made many friends during his brief sojourn in America, who hope for his speedy return. He is a lieutenant in the body guard of the German Emperor, and returns to the Fatherland to attend to his military duties.

MEXICAN SODA.—The large deposits of soda to the west of Altar and immediate vicinity are to be soon exploited by a company which has been organised in New York. Messrs. Andres and Ortega, owners of the vicinity, have sent samples which have shown excellent quality, and on the strength of this showing the company was formed. Some forty or fifty years ago some prominent men of the State of Sonora proposed to start the exportation of soda from this part, but the obstacles which had to be overcome in the way of transportation were great, the vessel in which the first shipment was made sinking. Since that time until the present nobody else has cared to go into the enterprise.

THE POLLUTION OF THE RIVER DEE.—A conference representing the county councils of Cheshire, Flintshire, Denbigh, Shropshire, Merionethshire, and the city of Chester was held at Chester Castle, Sir Watkin Williams-Wynn presiding, to consider the desirability of forming a joint board for enforcing the Rivers Pollution Act (1876) throughout the entire watershed of the Dee. The result of the conference was the adoption of a series of recommendations to the respective county councils in favour of the formation of such a board, and also as to the constitution of the joint committee. These recommendations will have to be ratified by the different county councils before the Local Government Board will be asked to issue the order. It was estimated that the cost of the new authority would average about £1,000. per annum.

Parliamentary Jottings.

A NITRO-GLYCERINE FACTORY IN ANGLESEY.

IN the House of Commons Mr. Howell asked the Home Secretary whether his attention had been called to the fact that licence for the erection of a nitro-glycerine manufactory by Paisley at Rhos Neigr, in Anglesey, did not carry out the requirements of the Explosives Acts, in not containing a proper plan showing the situation of the proposed works; whether he was aware that a manufactory was built upon common lands, and in dangerous proximity to the main line of the London and North-Western Railway at a rising watering-place of Rhos Neigr; and whether a licence under the Explosives Acts, when granted, would entitle the licensee to occupy common lands in defiance of the rights of the commoners.

Sir M. White Ridley said a plan attached to the draft licence considered by the Chief Inspector of Explosives to satisfy the requirements of the Act. The question of dangerous proximity was one it would be proper for the local authority to consider in deciding application. He was not aware that the factory was to be built on common lands, but he should certainly say that the licence would entitle the holder to enclose such lands.

Reports of Companies.

THE BRITISH ALUMINIUM CO., LTD.

THE second ordinary general meeting of shareholders of the company was held last week at the Westminster Palace Hotel, London, Mr. R. Wallace, Q.C., in the chair. The second annual report announced a profit of £5,744 8s. 10d., which, with £1,112 carried forward from last year, amounted to £6,857 13s. 10d. A year ago a factory had been built and equipped for the purpose of manufacturing electrolytic carbons, the other factories had been completed, progress had been made with the additional engineering works for storage of water at Foyers. In order to supply the growing demand it had been decided to increase the plant of the different factories. Orders had been given for the carrying out of the work. A lease had been entered into to lease water power in Wales to the Illuminating Company. The Chairman said that the demand for aluminium was increasing at so great a rate that it was necessary to make provision for it at once. In future the dynamo works would be ordered in this country if they could get them made. He hoped that to some extent aluminium might come to the place of copper. Bulk for bulk the price of copper and aluminium was the same. It might also be found desirable to use it instead of iron where less weight was a consideration to save the expense of the moving of heavy machinery. The company was very fortunate in having so much water power at its command, as by the time the demand from those to whom it was lent a dividend could be paid the aluminium was at all. They had entered upon legal proceedings for the importation of aluminium from America, but a proposed agreement from America which might lead to a termination of the same, however, the terms were agreed to they would be enforcing this injunction. He had recently conferred with the directors of French aluminium companies, and he found that in England the cost of production was much cheaper, so much so that it was that they should supply a French company. He moved that a dividend be declared at the rate of 7 per cent. on accumulative preference shares up to January 1, 1896, and that such dividend be made payable after May 20, 1897. The resolution being carried, Mr. E. Cros and Mr. R. Heath, retiring directors, were re-elected.

DIVIDENDS.

THE RIO TINTO COMPANY announces that at the general meeting to be held on the 22nd inst., the directors will, subject to the recommendation of the shareholders, recommend the payment of a final dividend for the year 1897 of 38s. per share, or 19 per cent., free of income-tax. Drawn sundry depreciations written off amount to £108,900, and the profit carried forward is £24,000. Holders of provisional scrip for the dividend shares will receive this dividend at the rate of 17s. 6d. for each preference share, and 17s. 6d. for each new share of £5.

THARSH SULPHUR AND COPPER COMPANY, LIMITED.—The directors for 1896 state that the net profits, together with the balance carried forward from 1895, amounted to £234,458. The directors recommend that £218,750 be appropriated to the payment of a dividend of 17½ per cent. on the capital, tax free, and that the balance be carried forward.

The Patent List.

List is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

g Gas A. A. Stephenson. 7,991. March 29.
ture of Coke. R. Dixon. 8,007. March 29.
s for Testing Indigos, etc. J. Grossmann. 8,018. March 29.
Substances. A. Mitscherlich. 8,042. March 29.
mine Salt. B. C. Hinman. 8,094. March 29.
s for Recovering Ammonia, etc., from Gases. S. Bourgois,
caucher, L. Hoche, and E. Isidor. 8,220. March 30.
nents in Chemical Compounds. G. L. Schaeffer. 8,227. March 30.
and Using Sewage. G. A. de Katow. 8,281. March 31.
ture of Ferric Sulphate. W. Wyld and J. H. Cox. 8,333. April 1.
g Sewage and Semi-Liquids. E. L. Matthews. 8,335. April 1.
g Iron from Slag Heaps. G. Kentler and F. Steinert. 8,376.
nents in Bunsen Burners. A. Lecomte and J. Loeser. 8,385.
s for Carburetting Air. E. Bouchard-Praceiq. 8,485. April 2.
on of Sewage and Foul Liquids. W. M. Ducat. 8,500. April 2.
Leather. R. Tilt. 8,519. April 3.
s. J. Nicholas. 8,555. April 3.
ure of Oxygen. W. Blackie. 8,583. April 3.

ABSTRACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

nents in and Relating to Apparatus for Obtaining Salt from
and for Similar Purposes. W. Shedlock. 37, Landor-road,
m. Eng. Pat. 7,796. April 13, 1896.

n is circular. The salt as it collects is scooped by arms to
, where it drops into a space below the pan, and is moved by
atal conveyor to an elevator. The brine is fed into a circular
tached to the central shaft which carries the scraping arms.
e point of this bucket a perforated pipe projects, and as it
preads the brine evenly over the pan. For further particulars
struction of the apparatus the six figures should be consulted.
ils are the source of heat.

nents in the Manufacture of Materials or Compounds for Use
e Treatment of Sewage and Impure Waters. H. B. Sharp.
d, Heaton Moor-road, Heaton Moor, near Stockport. Eng. Pat. 6,132.
19, 1896.

ground mill or tap cinder from ironworks is gently stirred in
-diluted sulphuric acid, the heat of which completes the
f the cinder. A portion of this solution of ferrous sulphate
in a boiler with powdered iron and alumina ore and sulphuric
hen the reaction is complete, the contents of the boiler are
a state of ebullition, and the rest of the ferrous sulphate mixed
ite of soda added. Oxidation results, and the nitric acid given
ected and recovered. On completion of this last step, the
of the pan can be cast into moulds, etc., ready for use.

r Improved Artificial Manure or Fertilizer, and Process for
facturing the same. O. G. Blunden, 180, Cambridge-street, London.
Pat. 10,109. May 12, 1896.

carbonized, and the distillate which results collected. This
is then mixed with peat ashes obtained by the ordinary
on of peat. The mixture is added to the residue from the
ng process. The latter absorbs the ammonia evolved when
late and peat ashes are mixed. Gypsum may be added with
end, or may even wholly substitute the carbonized peat. The
agent which is of real value is the product of distillation.

nents in or Relating to the Liberation or Recovery of Oils
he like. The Fish Utilization Syndicate, Ltd., and J. C. W. Stanley.
[31, Queen Victoria-street, London. Eng. Pat. 7,269. April 2, 1896.

ling with fish livers, or the like, they are first boiled in water,
oil that rises skimmed off. Silicate of soda or potash is then
nd the livers re-boiled. The silicate breaks up the oil cells.
of silicate is sufficient for 32 pounds of fish liver. The oil
pared is washed. Vegetable fats are deodorised and
with about 5% per weight of silicate.

A New or Improved Manufacture of Soap. R. R. de Faucheu d'Humy,
136, Prince's-road, Liverpool. Eng. Pat. 5,791. March 16, 1896.

The soap as described will, it is claimed, not only be suitable for
toilet purposes, but also has the property of bleaching clothes when
washed with it. In preparation, petroleum and suitable fatty matter,
such as tallow or other soap stock, are boiled together at 300°F. Pitch-
pine shavings are boiled in a separate vessel with soda, paraffin wax,
and Castile soap. The two batches are then mixed, and spermaceti
added. The water lost by evaporation is replaced, and the product
framed. The percentages are given, but they can be changed at will
according to circumstances.

IMPORTS AND EXPORTS FOR MARCH.

THE Board of Trade returns for the last month may be considered
satisfactory, even after making considerable allowance for the
rush to America before the new Tariff Bill comes in. In the *imports*
oils and nitrate of soda show a decline. For once the *exports* of alkali
show a small increase, while there are distinct advances in regard to
salt, chemical manures, and seed oils.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1896.	1897.
Margarine	Cwt. 88,696	89,484
Copper Ore and Regulus	Tons. 10,370	17,845
Pyrites	" 56,959	67,740
Tin	Cwt. 73,175	90,767
Alkali	" 17,100	17,514
Brimstone	" 15,036	47,320
Dyes, Coal Tar	L. 62,123	63,452
Saltpetre	Cwt. 30,490	45,470
Petroleum	Gall. 10,554,270	11,054,302
Turpentine	Cwt. 858	8,306
Guano	Tons. 1,933	983
Nitrate of Soda	" 26,057	12,817
Paraffin	" 51,393	67,320
Rosin	Cwt. 116,723	69,387
Tallow and Stearine	" 239,934	182,533
Oil Seed Cake	Tons. 22,027	27,136
Wood Pulp	" 19,575	25,855

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1896.	1897.
Alkali	Cwt. 449,030	474,790
Cement	Tons. 30,552	40,733
Coal and Coke	" 2,472,707	2,880,910
Copper, all kinds	Cwt. 109,428	71,482
Iron and Steel	Tons. 263,341	351,144
Chemical Manures	" 40,893	45,561
Oils, seed	" 4,869	6,192
Salt	" 33,587	64,936

THE BURNLEY SEWAGE SCHEME.

AT a meeting of the Burnley Town Council recently, the Mayor
(Mr. Thornber) presiding, it was decided to make a grant of
£1,000. to the Science, Art, and Technical Classes Committee of the
Burnley Mechanics' Institute in aid of technical instruction. A lengthy
discussion took place on the recommendation of the Highways and
Sewage Committee to proceed with the construction of coke breeze
filters at an estimated cost of £850., Mr. Alderman Burrows (the chair-
man of the Committee) stating that the principal reason why they asked
for this was because they were very much pressed by the Ribble Joint
Committee, and they would have to do something in the immediate
future. Land filtration, he contended, had been a great success, but
they had not a sufficient quantity of land to take the whole of the effluent
from the precipitation tanks. Mr. Alderman Thornber understood that
when they took the land for their sewage works they were authoritatively
informed that their was sufficient to serve double the population of
Burnley. Mr. Alderman Burrows said it was stated by such authorities
as Dr. Frankland that an acre would be sufficient for 3,000 people, but
they had found out that it was only sufficient to deal with the sewage
from a population of one thousand. The recommendations of the
Committee were eventually agreed to.

THE ELECTRO-CHEMICAL COMPANY, LIMITED. — We learn that
Mr. J. Leith has resigned his position as manager of the works of this
company at St. Helens.

NORTHWICH SALT COMPENSATION DISTRICT.

Brine Pumping (Compensation for Subsidence) Act, 1891.

Brine Pumping (Compensation for Subsidence) Provisional Order Confirmation Act, 1896.

Pursuant to sec. 23, sub-sec. 4, of the Brine Pumping (Compensation for Subsidence) Act, 1891, I hereby give you notice the following is a complete list of all Claims received by the Northwich Compensation Board up to and including the 1st M 1897, specifying the names of claimants, the amount claimed, and the property in respect of which each such claim is made.

No.	Names of Claimants.	Description of Property.	Situation.	Amo
1	Leeds and Leicester Boot Co.	shop, &c.	11, Witton-street, Northwich	
2	William Newall	3 shops	43-47, High-street, Northwich	
3	G. Lever	3 warehouses	Boundary-street, Northwich	
4	Jabez Buckley	4 cottages	Cross-street, Marston	
5	"	3 cottages	Platts Hill, Wincham	
6	"	2 cottages	Platts Hill Mine, Wincham	
7	Thos. Plant	shop	17, Witton-street, Northwich	
8	Jos. Anderson	3 cottages	Platts Hill Mine, Wincham	
9	Thos. Astles and another	2 cottages	Cross-street, Marston	
10	Simeon Fogg	shop and house	13, Witton-street, Northwich	
11	Samuel Moreland	shop	21, Witton-street, Northwich	
12	Trustees of Northwich Savings Bank	bank	28, Winnington-street, Northwich	
13	Steph. Lamb	house	37, Leicester-street, Northwich	
14	Geo. A. Hughes	2 shops	47-49, Witton-street, Northwich	
15	Thos. Chantler	10 cottages	Crum Hill, Northwich	
16	Geo. B. Cliff	house and shop	8, Market-street, Northwich	
17	Robert D. Nicholson	3 cottages	Cross-street, Marston	
18	"	4 cottages	Limekiln-road, Northwich	
19	"	3 cottages	Leicester-street, Northwich	
20	Exors. of Thomas Eachus	1 cottage	9, Leicester-street, "	
	"	5 cottages and 1 shop	Church-street, "	
	"	2 cottages	20, 21, Oldham's Hill	
	"	1 shop	Market-street, "	
	"	2 cottages	Sheath-street, "	
	"	2 shops	1-3, Witton-street, "	
	"	coach-house	1, Witton-street, "	
21	Wm. Patten	house and shop	18, Witton-street, "	
22	Hy. Smith	"	25, Crown-street, "	
23	Exors. of T. C. Hughes	shop	47-49, Witton-street, "	
24	"	5 cottages	Leicester-street, "	
25	Geo. H. Rutter	house and shop	7, Witton-street, "	
26	Rd. Joynson	house, shop, & 3 cottages	Tabley-street, "	
27	Geo. T. Joynson	house and shop	113, Witton-street, "	
28	Thos. Freeman	1 cottage	49, Tabley-street, "	
29	Chas. Anderson	1 cottage	28, Leicester-street, "	
30	Exors. of S. Forster	shop and houses	6-8, Winnington-st., "	
31	Ann Blower	3 cottages	Back Tabley-street, "	
32	Thos. P. Wilding	house and smithy	Witton-street, "	
33	Hannah Griffiths	2 cottages and warehouse	Leicester-street, "	
34	Jos. Thomas	shop	1, Applemarket-st., "	
35	"	shop	22, High-street, "	
36	Ed. Boden	house	53, Tabley-street, "	
37	Wm. Caldwell	shop	12, High-street, "	
38	John Platt	shop and warehouse	49, High-street, "	
39	Mary Wilkinson	3 cottages	2-6, Leicester-street, "	
40	Rd. Joynson	2 cottages	32-34, Tabley-street, "	
41	Geo. T. Joynson	house and shop	Witton-street, "	
42	"	house, stable, &c.	Witton-street, "	
43	Algernon Fletcher	office	Winnington-street, "	
44	Jos. Poole	4 shops	112-118, Witton-st., "	
45	"	5 cottages	Old Hall Court, "	
46	Thos. Moreton	surgery	Winnington-street, "	
47	Jabez Anderson	4 houses	2, 35-39, Tabley-st., "	
48	Albert Gorst	2 cottages	8-10, London-road, "	
49	J. Rayner	2 shops	Witton-street, "	
50	"	houses	Post Office-place, "	
51	Thos. Leicester	house and shop	191-193, Witton-st., "	
52	Exors. of Thos. Wilson	shops	Church-street, "	
53	James Holland	3 cottages	12-16, Leicester-st., "	
54	"	3 cottages	12-16, Leicester-st., "	
55	J. Carter	warehouses, &c.	Castle-street, "	
56	Thos. Borrowes	3 cottages	98-102, Leicester-st., "	
57	Chas. J. Hughes	shop and offices	51-53, Witton-street, "	
	Eliza Hankey	2 cottages	37-39, Warrington-rd., "	
	Hy. Bratt	house and shop	Witton-street, "	
			Carried forward	6,86

No.	Names of Claimants.	Description of Property.	Situation.	Amount claimed £ s. d.
58	Jas. Stelfox	1 cottage	Brought forward	6,890 4 6
59	Mary Seaton	houses	Ollershaw-lane, Wincham	5 16 9
	"	houses	Arnolds' Court, Northwich	
	"	houses	Back Leicester-street,	622 11 6
60	Jas. Stelfox and others	7 cottages	Leicester-street,	
61	Jas. Stelfox	4 cottages	75-87, Warrington-rd.,	7 14 0
62	Edwin Pickering	shops, &c.	Witton Bank-place,	9 5 3
63	J. Weston	shop, &c.	London-road,	199 0 0
64	Wm. Yarwood	3 cottages	Dane-st. & Sheath-st.,	35 0 0
65	Elizabeth and Alfred Carter	3 houses, smithy, &c.	18-22, Warrington-rd.,	200 0 0
66	Union Bank of Manchester	bank	Leicester-street,	500 0 0
67	Trustees of Rev. C. K. Troughton Dean	stable, &c.	Castle-street,	319 4 8
68	Jos. Blease	2 cottages	Lock-street,	16 17 8
69	J. Bebbington	shop	Leicester-street,	27 8 11
70	Chas. Patten	house	36, High-street,	29 10 8
71	Jas. Renshaw	shops	22, Tabley-street,	82 1 6
72	"	shop	Winnington-street,	10 0 0
73	M. S. and A. Gibson	shop	Witton-street,	45 0 0
74	Robert Bohanna	4 cottages	2, Castle-street,	25 2 5
75	Wm. Molyneux	2 cottages	Church-street,	18 8 7
76	Trustees of Jos. Perry	10 cottages	81-83, Leicester-st.,	70 0 0
	"	house	18-28, Leicester-st.,	213 5 7
77	Wm. Anderson	3 cottages	1-7, Perry's-court,	
78	Geo. B. Cliff	shop &c.	55, Tabley-street,	23 16 4
79	"	house and shop	100-103, Leicester-st.,	30 0 0
80	Geo. F. Willis	2 shops	Crown-street,	60 0 0
81	Martha Plant	shop	Crown-street,	21 11 6
82	Thos. H. Maddocks	house and shop	4-6, Market-street,	185 0 0
83	Jane Harrison	2 cottages, stables, &c.	17, Witton-street,	20 0 0
84	Isaac Pimblott	house and land	5-7, Dane-street,	50 0 0
85	Peter Taylor and Sons	workshops	12, Applemarket-st.,	140 0 0
86	Annie Starkey	house and shop	Lock-street,	200 0 0
87	Trustees of Congregational Schools	school	12, London-road,	222 17 2
88	Thos. Burns	house and shop	London-road,	153 0 0
89	D. Hughes	shop, &c.	43-45, Witton-street,	612 7 6
90	Wm. Anderson	cottage	Witton-street,	51 19 10
91	Sarah Anderson	2 cottages	13-15, Castle-street,	376 17 10
92	Jane Burgess	shop and house	6, Castle-street,	42 9 3
93	Sarah Anderson	cottage and land	Witton Brow, Marston	6 3 9
94	Jane Burgess	2 cottages	6-8, Anderson's-court,	44 9 11
95	Mary Beckett	shop	42, Leicester-street,	59 10 0
96	"	house	Witton Brow, Marston	109 10 0
97	"	drains, &c.	3-4, Anderson's-court,	34 9 11
98	John and Thos. Dodd	2 shops	29-33, High-street,	
99	Geo. Edwards	shop	29-33, nr. High-st.,	847 6 1
100	Tafford and Cook	house and office	29-33, bk. of High-st.,	
101	"	2 shops	6, Crown-street,	56 0 5
102	Jos. O. Brandrith	2 shops	24, High-street,	192 7 2
103	Trustees of Wesleyan School	school	16, Winnington-street, Northwich	75 17 6
104	Griffith Humphrey	shop	10-12, Winnington-street,	17 17 8
105	M. F. Burgess	shop and warehouse	23-25, Winnington-street,	52 17 0
106	M. B. Ankers	house	Leicester-street,	46 5 7
107	Jas. Worsley	shop	48, High-street,	220 0 0
	"	2 houses and smithy	27-29, High-street,	231 3 7
108	Wm. Minshall	chapel	52, Tabley-street,	120 0 0
109	Trustees of Primitive Methodist Chapel	2 houses and shops	1-5, Leicester-street,	79 1 0
110	Geo. Arrowsmith	cottages	33, Witton-street,	117 1 11
111	Hy. Starkey	shop	St. Paul's-place,	305 18 3
	"	bakehouse	Witton-street,	42 7 7
112	Robt. Jackson	3 cottages	1-4, Capper's-court,	18 17 9
113	David Hughes	house and shop	22, Witton-street,	
114	Thos. B. Moreton	shop and offices	Capper's-court,	36 0 0
115	Jas. Hy. Barlow	2 shops and warehouses	6-8, Lock-street,	75 0 0
116	Trustees of Thos. Barlow	house and shop	Castle-street,	6 10 0
117	Leo W. Marsh	house	6-8, High-street,	200 0 0
118	Jas. Leicester	house and 2 shops	37-39, High-street,	39 16 1
119	Albert H. Darwell	house and stables	Castle-street,	26 12 5
120	Jas. Moreton	1 cottage	Castle and Winnington-st.,	10 8 0
121	Thos. and Jane Molyneux	workshop	2-4, Crown-street,	223 8 1 1/2
122	Jos. P. Tundley	house and shop	Witton-street,	10 4 8
123	Jno. Thompson	4 cottages	High-street,	30 10 0
	"	1 shop	50, High-street,	125 0 0
124	Wm. Platt	shop and house	Witton-street,	44 0 0
125	Thos. Leicester	stables, &c., yard	Witton-street,	44 3 3
	"	houses and shops	191-3, Witton-street,	75 0 0
Carried forward				15,009 10 0 1/2

No.	Names of Claimants.	Description of Property.	Situation.	Amount c.
			Brought forward ..	15,009 0
126	Thos. Anderson ..	1 cottage ..	Witton-brow, Marston ..	1 0
127	Chas. E. Hall ..	3 shops ..	56-60, High-street, Northwich ..	392 4
128	Jas. Sanders and others ..	house and shop ..	High-street, Northwich ..	27 3
129	" ..	" ..	" ..	75 9
130	" ..	" ..	" ..	123 8
131	" ..	cottage and stable ..	Dane Bridge ..	101 4
132	" ..	warehouse and mill ..	" ..	507 1
133	Jane Shaw ..	shop and house ..	50, Witton-street, ..	8 0
134	Thos. Borrowes ..	2 cottages ..	15-17, Tabley-street, Northwich ..	45 0
135	Jno. Hassell ..	house ..	London-road, ..	75 19
		2 shops ..	Bull Ring, ..	
136	Exors. Jos. Willett ..	2 houses and shops ..	21-23, High-street, ..	23 4
137	Thos. Bratt ..	cottages ..	100-108, Witton-street, ..	36 0
138	Mary E. Drinkwater ..	" ..	Leicester-street, ..	33 18
139	Greenall, Whitley & Co., Ltd. ..	inn ..	Crown and Anchor (rebuilt) ..	1,632 12
140	" ..	" ..	" (repairs) ..	203 12
141	" ..	" ..	Witton-street, Foresters' Arms (rebuilt) ..	291 13
142	" ..	" ..	" (repairs) ..	32 2
143	" ..	" ..	White Lion (rebuilt) ..	815 10
144	" ..	" ..	" (repairs) ..	63 13
145	" ..	" ..	George & Dragon (rebuilt) ..	454 10
146	" ..	" ..	" (repairs) ..	313 4
147	" ..	" ..	Eagle & Child (rebuilt) ..	946 0
148	" ..	" ..	" (repairs) ..	77 7
149	" ..	" ..	Fox ..	865 17
150	" ..	" ..	Crown ..	75 11
151	" ..	" ..	" Assembly Room ..	699 13
152	" ..	" ..	Navigation Inn ..	73 6
153	" ..	" ..	Prince Albert Inn ..	83 10
154	" ..	" ..	Griffin Inn ..	26 3
155	" ..	" ..	Angel Hotel ..	342 17
156	" ..	" ..	Red Lion Inn ..	158 14
157	" ..	shop, &c. ..	Guardian Office ..	195 17
158	" ..	" ..	Lord Nelson Inn ..	18 2
159	" ..	" ..	Bee Hive Hotel ..	107 3
160	" ..	" ..	Vine Tavern ..	18 12
161	" ..	" ..	Old Ship Inn ..	90 8
162	" ..	" ..	Bridge Inn ..	71 13
163	" ..	" ..	Shop, Crown-street ..	66 2
164	" ..	" ..	Market Tavern ..	14 9
165	" ..	" ..	Goldsmiths' Arms ..	11 9
166	" ..	" ..	Old Queen's Head ..	21 15
167	" ..	" ..	Old Robin Hood and shop ..	49 17
168	" ..	" ..	Roebuck Inn ..	102 5
169	" ..	" ..	Prince of Wales Inn ..	22 3
170	" ..	" ..	Bleeding Wolf ..	120 14
171	" ..	" ..	Bowling Green ..	22 10
172	" ..	" ..	Black Bear ..	31 15
173	" ..	" ..	Turk's Head ..	224 3
174	" ..	" ..	Townshend's Arms ..	29 16
175	" ..	" ..	Late Volunteer Inn ..	60 10
176	" ..	" ..	New Wheat Sheaf ..	36 1
177	" ..	" ..	Sportsman's Head ..	280 13
178	" ..	" ..	Bull's Head ..	267 18
179	" ..	shop ..	Applemarket-street, Northwich ..	8 19
180	" ..	bakehouse ..	Church-street, ..	5 1
181	" ..	land ..	Castle-street, ..	42 8
182	Parr's Banking Co., Ltd. ..	bank ..	Dane Bridge, ..	230 11
183	J. A. Woodall ..	house and shop ..	Crown-street, ..	4 5
184	Jno. Ravenscroft ..	saw mills ..	Cotton Works-yard, ..	170 15
185	Thos. Austin ..	house and shop ..	52-54, High-street, ..	1 10
186	Jas. Wilkinson ..	house ..	72, Leicester-street, ..	21 10
187	Jos. Cross and others ..	two cottages ..	68-70, Warrington-rd., ..	25 0
188	Jno. Johnson ..	shop ..	Crown-street, Northwich ..	53 1
189	Thos. P. Taylor ..	houses and shops ..	Witton-street and Tabley-street, Northwich ..	35 0
190	Jno. Embrey ..	restaurant ..	Davies'-street, Northwich ..	93 14
191	Jno. Embrey ..	house and shop ..	Applemarket-street ..	66 5
192	Geo. L. Leigh ..	shops, etc. ..	Castle-street ..	65 0
193	Jno. W. Lowe ..	house and shop ..	Witton-street ..	20 0
194	Chas. J. Hughes ..	6 cottages ..	Leicester-street ..	57 14
Total ..				27,411 3

Dated this 6th day of March, 1897,

(Signed)

FRANK A. COWLEY,

Clerk to the Board.

PLES OF PATENT LAW ABUSE.

week, some of the evidence adduced by the Manchester which then waited on the Board of Trade was of st, and in the following we are able to give several before the Board by Mr. Ivan Levinstein (of Levin- After briefly summarising the difficulties imposed on es by Section 22, Mr. Levinstein presented the follow- ures:—

ed a list of patents which have been granted to foreign British Patent Office for coal-tar colours and allied 91 to 1895 inclusive, but as some patents in 1895 are d in the official journal, I have taken for this latter year e four preceding years. I have here a synopsis of the

German.	Swiss.
..... 74	 4
..... 109	 7
..... 138	 10
..... 126	 12
..... 112 averaged....	 8 averaged.
559	41

patents granted to foreign subjects, not a single one is this country.

Patent Office has granted from 1891 to 1893 to German icants 243 patents, or 98 patents less than we have n patentees within the same period.

of this country is now directed upon the question of tion; millions are being spent on it; but many more e to be spent and a generation will pass before we shall Germany and Switzerland. But even when this goal f our gain as far as foreign competition is concerned , unless we also bring our Patent Laws into some conse of other nations.

be stated that it is an exaggeration to say that this the coal tar industry; on the contrary, it is extending,

laws be brought into conformity with those of other sure that this industry, which has its cradle in this ry rapidly increase, in spite of the great advantages n rivals have hitherto derived from the laxity of our

recently been called in Parliament by Captain Philpots n to this matter, and questions were put to you, Sir, uld take steps in the interests of home industries and bring the Patent Laws of the United Kingdom into f other European nations, and Mr. Schwann, *inter alia*, to the vagueness of Section 22, enquired whether you the desirableness of appointing a Select Committee. ber, Sir, that in your reply you stated that until it is fence that Section 22 of the Act is insufficient to effect patents taken out by foreigners in this country you were support a motion for a Select Committee.

by a correspondence between foreign patentees and ts that there is a very remote chance of the Board of ing that experience, because the foreign patentee will finite refusal, as the Act requires, but acting, no doubt, ill in his reply fence and argue with the request of nd thus prevent the latter from bringing his case before ade, but, if actually brought before the Board, the latter eatest difficulty in arriving at any decision without in- licant in very costly proceedings.

ts forth:—"If on the petition of any person interested the Board of Trade that by reason of the default of a t licences on reasonable terms." I will stop here, be e recently there was some uncertainty in the minds of he meaning of the words "by default," but we have it ority of the Board of Trade that its meaning is a definite plicant on the part of the patentee.

nt is, who is to decide whether the terms are reasonable

ntinue to read the three clauses from the Section:— tent is not being worked in the United Kingdom; or ionable requirements of the public with respect to the ion not supplied; or

erson is prevented from working or using to the best tage an invention of which he is possessed, the Board order the patentee to grant licences on such terms as to nt of royalties, security for payment, or otherwise, as the l, having regard to the nature of the invention and the nstances of the case, may deem just, and any such order e enforced by a mandamus.

You will notice, Sir, that under Clause A there is no time specified within which the patent must be worked, nor on what scale it must be worked. It is left to the foreign patentee to decide (1) whether he will work his invention within three, or five, or 14 years, and (2) whether he will work it on a scale to supply the requirements of the country or on a dummy scale; in other words, he can evade the whole Act just as he pleases, and play the dog-in-the-manger farce with the British applicant as long as he likes. That such is actually the case will be evident from the requests made by British applicants for licences to foreign patentees. I have only selected a few examples in order to save time, but many more might be given if wanted.

Example 1.—On August 7th, 1889, a British manufacturer requested a well known firm of chartered patent agents to apply on his behalf to a German company for the grant of a licence of their British patent, No. 3,087, dated February 11th, 1889. To this request the following reply, dated August 14th, 1889, was received:—"We are in receipt of your favour of 7th inst., and in reply we beg to say that the invention covered by the patent you name *is being worked* in Great Britain, and, as we can supply the article in question in much larger quantities than those required by the public, we are sorry we cannot grant the licence you apply for. However, we shall be glad to supply to your client any quantity of the article he may desire."

The patent agents replied, Aug. 20th, 1889:—"You say that the patent is being worked in Great Britain, if this is so I do not think that I am unreasonable in asking where? I have to refer you to the terms of the Patents and Designs and Trade Marks Acts, 1883-1888, section 22, and to give you notice that unless you are prepared to grant a license on reasonable terms, a petition for a compulsory license will be presented to the Board of Trade." The Foreign Patentees reply:—"We have your favour of 20th inst., and are giving the same our careful attention. However, before writing to you definitely, we must await the return of a member of our firm who has charge of and attends to all matters relating to our patents, and in whose absence we do not like to take definite steps."

Note, that in this second reply, nothing more is said about working the patent in England in spite of the fact that they were distinctly asked where it was being worked; the truth is that the patent in question, which refers to the manufacture of Antipyrine, was neither then being worked nor has it up to this date been worked in this country, the product being all imported from Germany.

The applicant waited for two months for the return of the gentleman who "has charge of all matters relating to patents," and then wrote on October 17th, 1889:—"I beg to remind you that I have not yet received your promised reply to my letters of the 7th and 20th of Aug 1st last. I must request you to be good enough to favour me with a definite reply at once, failing which my client will take such proceedings as he may be advised." No reply was ever received from the Patentee. The applicant instructed the Patent agent to take the opinion of eminent Counsel, and from the following letter it will be seen why no proceedings were taken at that time.

Example 2.—March 23rd, 1897. "With reference to the 22nd Section of the Patents, Designs, and Trade Marks Act 1883, and to the rules relating thereto, it will be within your recollection that in the year 1889, you instructed us to endeavour to obtain on your behalf under that section, a license to use and exercise an invention patented in this country by a German firm. We accordingly placed ourselves in communication with the firm in Germany, making a formal application for a licence. Our correspondence ended without our obtaining any definite reply, and it then became necessary to carefully consider your position before moving further. In a matter of so much importance we did not feel justified in advising you to proceed without first consulting with others who are qualified to give an opinion in the matter. We accordingly consulted some of our London colleagues and eminent Counsel. As a result we felt constrained to advise you not to proceed further in the matter. Our first ground of objection is found in the section itself, and our second in Rule 66. The wording of the section is vague and indefinite, and we apprehend that the Board of Trade or the "person or persons" to be appointed under Rule 66, would either object to interpret the section, or give such an interpretation as must be unsatisfactory to one or both of the parties, and lead ultimately to an appeal to the House of Lords. The points upon which uncertainty and difference of opinion would principally be found to exist would have been:—

1. "Default of Patentee."
2. "Reasonable terms."
3. "Patent not being worked."
4. "Reasonable requirements of the public."
5. "The Board of Trade may order."

Further, at the hearing provided under Rule 66 it is provided that "full opportunity shall be given to the Patentee to show cause against the petition." No appeal for the petitioner is provided either by the act or rules.

Since the section manifestly requires interpretation by the highest legal skill and authority, the petitioner is clearly at a very great disadvantage.

Again, the German firm might grant an exclusive licence under the patent to the third party, but the Board of Trade can deal only with the patentee, and cannot compel him to grant a second licence in conflict to the first or exclusive licence.

We believe, from the inquiries which we have recently made, that the advice we were constrained to give you in 1889 has been justified by events, as, although applications to the Board of Trade have been frequently proposed and in a very few cases commenced, none have yet been carried through, and we still believe that the only reason why the section has remained inoperative is to be found in its vague, ambiguous and misleading wording.

(To be continued.)

Trade Notes.

THE STRIKE AT DERBY GASWORKS.—The strike of gasworkers at Derby is ended, after lasting six weeks. The company are producing gas without difficulty, and none of the old hands remaining out will be taken back. It is estimated that about a hundred men will lose their employment.

SPURT IN THE CHEMICAL TRADE.—There is more activity reported at the chemical works in Widnes, St. Helens, and Runcorn, the trade having revived somewhat during the past few weeks. The shipments are greater than they have been known for several years. As a proof of the briskness it may be mentioned that orders have been issued to work throughout the Easter holidays instead of closing for a week. This news is very encouraging, but the impending New Tariff Bill no doubt has much to do with the spurt.

SANDERSON V. HOLDEN.—In the action Sanderson v. Holden, heard before Mr. Justice Collins and a jury, in the Queen's Bench Division, which was commenced on Saturday last, and which arose out of a dispute between London and Birmingham merchants in connection with a transaction in Sierra Leone copal gum, the jury, after hearing technical evidence, finally stopped the case. They found that there had been no adulteration by the defendant, and judgment was entered for him with costs.

LIQUID AMMONIA FROM GAS LIQUOR.—A great part of the gasworks ammonia which was at one time worked up to a highly saturated solution for refrigerating purposes has been superseded by the liquefied ammonia gas which comes on the market in iron cylinders. This ammonia, being in the highest possible state of concentration, is used in ice-making machines without further treatment. Aspersions have recently been cast on its purity; and to combat these, Dr. H. Bunte and Dr. P. Eitner, of Karlsruhe, devised an analytical method for its examination. It is based on the evaporation of a carefully weighed amount of liquid ammonia through potash drying-tubes. Notwithstanding statements to the effect that the commercial article contained large quantities of water, these investigators found only 0.49 per cent. of impurities in a sample from one of the largest producers. The impurities consisted partly of organic substances, so that the actual amount of water was very small indeed. By the ordinary process of liquefaction, the ammonia gas is carefully dried by quicklime before it is compressed, so that water is scarcely a likely impurity.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are moving better, but the price of 90's is down to 2s. 4½d to 2s. 5d., while for 50/90's 2s. 4½d. still holds good. Carboic acid are steady at 2s. 6d. for 60% crude, and 8d. for 40% crystals. Naphtha are firm at 1s. 1d. for crude, and 1s. 8d. solvent. Creosote quiet. Anthracene has been more inquired for at 7d. to 7¼d. for 30% A, and 5d. to 5½ for B. Pitch is slack, and hard of sale at 22s. 6d to 23s. f.o.b. East Coast.

Sulphate of ammonia is running down in price, though no doubt the holidays are being taken advantage of to help the depression. There has been more business moving since the decadence set in. Closing nominal values are:—Beckton £7. 8s. 9d., London outside makes £7. 11s. 3d., Liverpool £7. 13s. 9d., Hull £7. 11s. 3d. to £7. 12s. 6d., and Leith £7. 8s. 9d. to £7. 11s. 3d., all prompt.

MISCELLANEOUS CHEMICAL MARKET.

Business in the alkali trade continues fairly active by reason of the large demand for early shipments to the States. There is little movement, however, in prices. Bleaching powder steady at £6. 12s. 6d. per ton, hardwoods, f.o.b., and £6. 5s. to £6. 10s. per ton, softwoods, f.o.r. Alkali (58%) unchanged at £3. 7s. 6d., bags, f.o.r.—for export

£3. 10s. and lower, according to market. Soda crystals carbonate are in good request, and prices are firm. For caustic both prompt and forward, quotations are unaltered, viz., for pool, 77%, £9 5s.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 10s. per ton, 10-ton lots and upwards. Chlorates are again slightly potash at 3½d. to 4d., and soda 4½d. per lb. Saltcake more freely at 19s. to 20s., in bulk, f.o.r. Sulphur firm, and unchanged. Sulphate of copper is again brisk, and price £17. 10s. to £17. 15s., f.o.b. Nitrate of soda steady at 8s. prompt and forward. For vitriol and muriatic acids then general demand, but prices are unaltered. Potash, caustic carbonate, are well maintained in price, and continue in fair demand. Acetates of lime are unchanged. Other acetates quiet. Potash steady at 5d., soda 3½d. to 5d. per lb. Cyanide 10½ per lb. For white powdered arsenic demand is quiet, and price at £23. 15s., f.o.r. Garston. Ammonia salts generally firm, 3¼d. per lb. Muriate £19. per ton. Sal ammoniac 35s. and cwt. Trade in chemicals continues dull.

REPORT ON MANURE MATERIAL.

There is a fair amount of business passing, but supplies of material being ample the prices are barely maintained. Quotations for mineral phosphates are unchanged. Nothing reported in River Plate bones. Crushed Kurrachee bones about £3. 12s. 6d., and ordinary Bombay bone meal, £3. 1s. 10, ex store. For fine East Indian bone meal, £3. 15s. 1. There is a better demand for nitrate of soda, and 8s. for good 8s. 3d. for refined quality, is closing value, on spot. As for forward position values are scarcely so well maintained.

LIVERPOOL OIL AND COLOUR MARKET.

OILS.—There is next to nothing doing in palm oil, with of Benin at £19., and hard oils at £18. 7s. 6d. Olive is Spanish is moving fairly well at full prices. Linseed continue up towards its old position, Liverpool makes in export standing 15s. 3d. to 16s., according to quality. Cotton seed being a trifle firmer at 15s. to 16s. per cwt. Castor oil is 11s. spot. Good seconds Calcutta stand at 2½d.; first press 2½d. to 2¾d. per lb. Tallow is unaltered. Resin is moving. There is no change in values for any of the grades. Spirits are steady at 21s. 3d. per cwt., with a satisfactory Petroleum generally is quiet. Prices still stand: America 7d.; and Russian refined, 5¼ to 5½ per gallon.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady: Scotch warran 44s. 6½d., Middlesbrough 39s. 6½d. cash, and hematite Copper easy: Chili bars, G.O.B.'s and G.M.B.'s, closed at 4 to £49. 8s. 9d. cash, and £49. 8s. 9d. to £49. 13s. 9d. three Tin steady: Straits closed at £50. to £60. 10s. cash, and £61. 1s. 3d. three months; Australian, £61. 8s. 9d. ingots, £64. 5s. Lead steady: Spanish, £11. 18s. 9d.; English, £12. 2s. 6d. Silesian spelter, ordinary, £17. 7s. 6d. to £18. Nickel, 1s. 2½d. Antimony, £30. 10s. to £31. Quicksilver hands, £7. 5s.; second hands, £7. 4s. Copper shares steady 2½ to 2¾; Copiapo, 1½ to 2½; Libiola, 2½ to 2¾; Barry, 2½ to 3; Rio Tinto, 26 to 26½; Tharsis, 6 to 6½.

GLASGOW, TUESDAY.—Market firmer, and a moderate Scotch done at 44s 6½d., 44s. 7½d., and 44s. 6½d. cash 44s. 9½d., 44s. 9d., and 44s. 10d. one month; buyers, 44s. 6 sellers, 44s. 7d. Cleveland done at 39s. 9½d. one month 39s. 6½d. cash; sellers, 39s. 7d. Cumberland hematite 47s. 11d. one month; buyers, 47s. 8d. cash; sellers, Middlesbrough hematite done at 48s. 7d. cash; buyers cash; sellers, 48s. 7½d.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, THURSDAY.—Sulphate of ammonia dropped within the week down to £7. 10s. f.o.b., Leith, and by to-day it is procurable at £7. 10s., if lower. Dealers are altogether nonplussed over the behavior article which was expected to pull itself together in the Spring especially after the better weather set in. There is no forward report, and the views of continental correspondents still unfavourable. In the common chemicals there is rather enquiry for shipment, but the current of business still falls

for the time of the year. About the only change of value in the above has been in sulphate of copper which had been it is now rather firmer in feeling. In mineral oils and solid be condition remains unaltered, but there are already specu- the burning oils prices for next season, which we expected to

prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. sgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleacher, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, and boracic acid, £28. nett, Glasgow; bicarbonate of wt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; te of potash, 4½d. nett, for Scotch and English deliveries (for ¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for id English deliveries (for export, 3½d. nett, f.o.b. Glasgow); of potash, 5¼d. less 5%, any port; nitrate of soda, 8s. 1½d. 3d.; sulphate of ammonia, £7. 10s. prompt, f.o.b., ammoniac, first and second white, £35. and £33. nett. sulphate of copper, £17. 10s. to £17. 15s., less 5%, Liverpool; cale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin ° semi-refined, 1¾d. to 2d. per lb.; paraffin spirit , 6½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and ¾d., at Glasgow and other big centres, for Scotch buyers sales ½d. to ¾d. lower; ditto (lubricating) 865° £5. to 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. nports of sugar at Greenock were 16,403 bags cane unrefined a.)

L PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

—It looks as if another object lesson would be inflicted on the ates if the extreme tariff of the Dingley Bill should be adhered r the Canadian nor Continental nations view attempts to keep lucts out of America with the equanimity that we do, and abundant evidence that Germany and other beet pr- ntries intend to retort vigorously against American products gar clauses pass. It will then become a serious question the United States can afford to close many Continental o the produce of her farmers, and bearing in mind the com- f Australia, Argentina and Chili, the answer must ultimately e negative. Shipowners on the other hand will require remuneration in freight to pay the expenses of their journey s and forwards. The oil market at the moment is firm, but further declines upon last week's quotations, especially of l. There is very little real stability about the markets. Linseed , at 12s. 6d. per cwt. naked spot, buyers; forward 13s. 3d. ust; 13s. 9d. last four months. Boiled and refined £1. to per ton extra. Refined cotton oil easier: Spot, naked, d. per cwt.; forward May-August, 13s. 4½d. sellers; f. per ton extra. Crude ditto, spot, 11s. 9d. Casks £1. , 1s. 10s. per ton extra. Candia and Malaga oil £31. per firm. Turpentine 21s. 3d. per cwt. Belgian or Dutch om £16 10s. to £19. per ton, c.i.f. Italian olive oil soaps, £17 Cod oils, £16 to £18 per ton. Castor oil, extracted here, b.; East Indian, 4d. per lb.; and first pressure French, lb. Yorkshire grease, £8. to £9 per ton. S quiet and unchanged.

TS—Manufacturers are working full pressure to execute as ders as possible before the holidays. Both for home and markets there is a good all round demand. Prices are d.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are in moderate demand and business steady without alteration in prices. Soda crystals, £2. 12s. 6d. per ton, gross weight, locally. Sulphur scarce at £5. per ton. Caustic, 76/77%, £9. ; 70%, £7. 5s. to £7. 10s. per ton. Other articles unchanged.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett, do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett, hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady at 9s. per ton f.o.b. Tees.

COALS—Trade is fairly steady, and there is a good demand for steam and bunker coal. Coke continues in excellent demand for home and export consumption. To-day's prices are:—Best Northumbrian steam, 8s. 3d. to 8s. 6d. per ton; second quality, 7s. 3d. to 7s. 6d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton. Gas coals, 7s. 6d. to 8s. per ton. Bunker coals, 7s. 3d. to 7s. 9d. per ton. Household coals 10s. to 11s. per ton. Coke, 15s. to 16s. per ton.

New Companies.

Asphaltic Co., Ltd.—CAPITAL, £5,000., in shares of £1. each. This company has been formed to deal in and manufacture cements, etc., from asphalt and pitch.

Formalin Hygienic Co., Ltd.—CAPITAL, £10,000., in shares of £1. each. This company has been formed to acquire certain patents for the manufacture of formalin and kindred chemical products. The subscribers to the memorandum of association are:—S. Jordan, 13, Callow-street, Chelsea, S.W., gentleman; H. Baker, 119, Brayard-road, Peckham, S.E., gentleman; W. Ecott, 29, Powell-road, Clapton, N.E., gentleman; J. R. Marriott, Kibworth, Leicester, solicitor; C. T. Lissenden, 34, Alfred-street, Bermondsey, gentleman; A. W. N. Stuart, 46, Ronald's-road, Highbury, accountant; T. J. Bowles, 27, Upper Marylebone-street, W., gentleman.

Scarlet Ferric Oxide Co., Ltd.—CAPITAL, £10,000., in £1. shares. This company has been formed to acquire and work the oxide works at Talywain, and to manufacture and deal in oils, varnishes, acids, etc. The subscribers to the memorandum of association are:—A. Green, 67, Atherlay-road, Brockley, S.E., accountant; H. W. Evans, 13, Jeffreys-road, Clapham, clerk; A. Ward, 30, Marquis-road, Stroud Green, N., accountant; R. G. Thorpe, 3, Bardolph-road, Tufnell Park, N., clerk; W. H. Lee, 22, Southwark-road, Lee, S.E., clerk; R. G. H. Perryn, Carisbrook House, Twickenham, clerk; L. Bean, 17, Bernard-street, Russell-square, W., solicitor.

IMPORTS OF CHEMICAL PRODUCTS

AT
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending April 3rd.

acid—
15 pks. Fuerst Brs.
8 R. W. Greiff & Co.
300 c. T. H. Hughes
y, 10 cks. L. & I. D. Jt. Co.
13 Ohlenschlager Brs.
one—
100 t. Aust. Alum Co.
ium Nitrate—
y, 38 cks. Petri Brs.

Aniline Oil—
Holland, 1 brl. G. Rahn & Co.
Arsenic—
Portugal, 170 brls. Coverley & Westray
Asbestos—
Italy, 6254 Imperial Asbestos Co.
Germany, 25 Craven & Co.
Italy, 260 Pickford & Co.
" 80 Brit. Asbestos Co.
" 35 B. Rhodes & Son
France, 10 Girard Frs. & Co.
Barium—
Holland, 9 cks. R. W. Greiff & Co.

Barium Chlorate—
Germany, 22 cks. Petri Brs.
21 H. Wallace & Co.
Barytes—
Holland, 50 cks. J. L. Lyon & Co.
88 Taylor Brs.
Germany, 55 W. Harrison & Co.
Belgium, 103 J. L. Lyon & Co.
36 W. Harrison & Co.
Holland, 44 220 bgs. "
Bisulphide of Tellurium—
Holland, 6 cks. J. M. Steel & Co.
Bleaching Powder—
Holland, 30 cks. J. M. Steel & Co.
Belgium, 70 H. Wallace & Co.

Camphor—
Germany, 1 ck. T. H. Lee
Caoutchouc—
Germany, 20 c. R. G. Hall & Co.
U. States, 92 Prop. Ball Wf.
B. Honduras, 1 Major & Field
Zanzibar, 5 Hale & Son
" 19 Wallace Brs.
Germany, 22 "
" 7 Anderson, Weber & Co.
Singapore, 400 "
Rep. Colon, 27 "
Germany, 55 Stiebel Brs.
Zanzibar, 24 S. Figgis & Co.

la (otherwise undes.)—
 10 cks. J. Cassels & Co.
 139 bbs. Cunard S. S. Co.,
 3 pks. Ld.
 3 cks.
 3 cs.
 Tartar—
 12 cks. Sachse & Kleinm
 5 pks.
 ood—
 50 bgs.
 2 bskts.
 seal
 35 bgs. Kennedy & Moore
 2,355 bbs.
 117 bbs.
 258 cts.
 olams
 1 bg.
 57 bls. Rosing Bros.
 & Co.
 1 cs.
 100 bgs. J. Kitchen
 & Co.
 800
 200 bgs.
 2,000 sks. Cunard S. S.
 Co., Ld.
 250 brls. T. M. Duche
 & Sons
 100
 1 ck. 1 bg. R. J. Francis
 & Co.
 10 30 cs. Co. W'sale Society, Ld.
 1
 50 bgs.
 4 cks.
 40 cks.
 ese Ore—
 1,000 t. Darwin & Mostyn Iron Co.
 1,343
 2 brls. J. Cassels
 & Co.
 250
 2,600 brls. Broadbridge
 & Co.
 9 cks. R. J. Francis
 & Co.
 59 Co-op W'sale Society, Ld.
 Birmingham Colour Co.
 10
 6 205 brls.
 12 cs. T. Trotter
 & Sons
 80 M. Nicol & Co.
 9 tins
 8 dms.
 Scale—
 1,002 brls. Anglo-American Oil Co.
 272 Thompson & Bedford
 Wax—
 150 brls. Makin & Bancroft
 21 dms. Bancroft
 & Co., Ld.
 11 cks. 17
 89 Co-op W'sale Society, Ld.
 Sachse & Kleinm

Pumice Stone—
 Tenerife, 9 bgs. Farrand & Co
Pyrites—
 Huelva, 1,627 t. Matheson & Co.
Saltpetre—
 Calcutta, 1,643 bgs. Ralli Brs.
 669
Sheep Dip—
 B. Ayres, 800 dms. Pitt & Scott
Soap—
 New Orleans, 542 brls.
 Calcutta, 789 cs.
 Rotterdam, 5
 Philadelphia, 128 bbs.
 Boston, 2 R. Hovenden
 & Sons
 Leghorn, 300 Weaver
 & Sterry
 60
 Marseilles, 25 Bostock & Co.
 50 W. H. Flett
 29 M. Bell
 1 Globe Parcel
 Express
 5
Soapstone—
 Bordeaux, 270 bgs. Geo. G.
 Blackwell, Sons & Co.
Sodium Acetate—
 Rouen, 24 cks. Co-op W'sale
 Society, Ld.
Sodium Chlorate—
 Rouen, 48 cks. R. J. Francis
 & Co.
Starch—
 New York, 36 brls. J. Armstrong
 & Co.
 Hamburg, 7 cks. 288 cs.
 New York, 917 bgs.
 Philadelphia, 110 100 bbs. J. Howard
 & Co.
 Amsterdam, 40
 Antwerp, 120 cs. J. T. Fletcher
 & Co.
Stearine—
 Antwerp, 13 bgs.
Sulphur—
 Catania, 34 cks. 160 bgs.
Tallow—
 New York, 75 hds. 65 cs.
 N. Orleans, 140 tcs. Mackie & Co.
 B. Ayres, 300 pks.
Tar—
 Marseilles, 24 cks.
Tartar—
 Naples, 3 cks.
Tartaric Acid—
 Bordeaux, 1 cs.
Treacle—
 Boston, 530 brls.
 Philadelphia, 1 G. Waller
 120
Ultramarine—
 Hamburg, 6 cs.
Varnish—
 New York, 63 brls. W. A. Warren
White Lead—
 Antwerp, 25 J. T. Fletcher
 & Co.
Wood Pulp—
 Gothenburg, 951 bis. G. F. Green
 & Co.
 Boston, 1,404 bds. Spicer Brs., Ld.
 Rotterdam, 144 bls.
Zinc Oxide—
 Antwerp, 14 cks.
Zinc White—
 Stettin, 25 cks. M. Ashby, Ld.

MANCHESTER

Week ending April 3rd.

Alizarine—
 Rotterdam, 24 cks.
Ammonium Nitrate—
 Rotterdam, 1 ck.
Arsenic—
 Melbourne, 40 cks.
Barium Chlorate—
 Rotterdam, 4 brls.
Barytes—
 Antwerp, 50 bgs.
Castor Oil—
 Leghorn, 25 cs.
Caustic Potash—
 Hamburg, 31 dms.
Chemicals (otherwise undescribed)
 Rouen, 24 cks.

Colours—
 Rotterdam, 3 cks. 114 pks.
 Hamburg, 4
Dextrine—
 Hamburg, 100 bgs.
Farina—
 Stettin, 410 bgs. Browne,
 Geveke, & Co.
 750
Glucose—
 New York, 200 brls. T. M. Duche
 & Sons
 200
Glue—
 Antwerp, 2 brls.
 Rotterdam, 3 cs. 20 bgs.
 New York, 10 D. Moseley & Sons
 Hamburg, 5 cks. 58 bgs.
 Rouen, 6 20 bls.
Litharge—
 Rotterdam, 6 cks.
Madder—
 Rotterdam, 1 ck.
Paraffin Scale—
 New York, 994 brls. Anglo-
 American Oil Co.
Phosphate—
 Rotterdam, 9 cks.
Plumbago—
 Genoa, 100 bgs.
Pumice Stone—
 Messina, 50 bgs.
Shumac—
 Palermo, 130 bgs. 275 bls.
Soap—
 Rotterdam, 3 cs.
Soda—
 Antwerp, 6 cks.
Sodium Nitrate—
 Rotterdam, 4 cks.
Sodium Prussiate—
 Antwerp, 9 brls.
Starch—
 Antwerp, 192 cs.
 Rotterdam, 220
 New York, 100 bgs. Nat. Starch
 Manufacturing Co
 1,500 sks.
 1,970
Talc—
 Genoa, 100 bgs.
Tannic Acid—
 Hamburg, 6 cks.
Tar Oil—
 Antwerp, 20 cks. J. T. Fletcher
 & Co.
Tar Waste—
 Rotterdam, 5 cks.
Tin Oxide—
 Rotterdam, 10 cks.
Waste Salt—
 Hamburg, qty.
Wood Pulp—
 Gothenburg, 9,899 bls.
 Hamburg, 63
Zinc Ashes—
 Stettin, 22 cks.
Zinc White—
 Rotterdam, 35 cks.

HULL.

Week ending April 3rd.

Acids—
 Bari, 73 cks. Wilson,
 Sons, & Co., Ld.
Barytes—
 Amsterdam, 78 cks. W. & C. L.
 Ringrose
 Antwerp, 19 Bailey & Leatham,
 Ld.
 Bremen, 20
 Rotterdam, 70 bgs. Wilson,
 Sons, & Co., Ld.
 Antwerp, 33 brls.
Bleaching Powder—
 Rotterdam, 50 cks. Wilson,
 Sons, & Co., Ld.
Camphor—
 Hamburg, 3 cks. Wilson,
 Sons, & Co., Ld.
Castor Oil—
 Antwerp, 10 brls. Wilson,
 Sons, & Co., Ld.
Chemicals (otherwise undescribed)
 Amsterdam, 75 bks. Wilson,
 Sons, & Co., Ld.
 Christiania, 60 cks. "

Hamburg, 1 cs. Bailey & Leatham, Ld.
 Bremen, 7 kgs. Veltmann
 & Co.
 Hamburg, 2 cs. Wilson,
 Sons, & Co., Ld.
 Antwerp, 1 ck. "
 Dunkirk, 44 pks. "
Cod Oil—
 Christiania, 5 brls. Wilson,
 Sons, & Co., Ld.
Colours—
 Rotterdam, 7 cks. Hutchinson
 & Son
 Bremen, 1 cs. Veltmann
 & Co.
 2 cks. "
 Hamburg, 4 J. & T. Seddon
 & Co.
 13 Wilson,
 Sons, & Co., Ld.
 Rotterdam, 37 brls. W. & C. L.
 Ringrose
 Antwerp, 4 bbs. 61 pks. Wilson,
 Sons, & Co., Ld.
Cream of Tartar—
 Rotterdam, 4 cks. Hutchinson
 & Son
Cryolite—
 Copenhagen, 14 cks. Wilson,
 Sons, & Co., Ld.
Dextrine—
 Stettin, 25 bgs. Wilson,
 Sons, & Co., Ld.
Dyestuffs—
Alizarine
 Rotterdam, 40 brls. W. & C. L.
 Ringrose
 1 bx. "
Indigo
 Rotterdam, 3 cs. W. & C. L.
 Ringrose
Shumac
 Trieste, 55 bgs. Wilson,
 Sons, & Co., Ld.
 Palermo, 1,815
Tanners' Bark
 Ghent, 121 bgs. Hutchinson
 & Son
Valonia
 Smyrna, 371 t.
Farina—
 Harlingen, 300 bgs. W. & C. L.
 Ringrose
Glucose—
 Boston, U.S.A., 90 brls.
Glue—
 Hamburg, 50 bgs. Wilson,
 Sons, & Co., Ld.
 Bergen, 2 cks. "
 Dunkirk, 67 "
Linseed Oil—
 Rotterdam, 2 cks. Hutchinson
 & Son
Phosphate—
 Ghent, 260 t. Wilson,
 Sons, & Co., Ld.
Pitch—
 Hamburg, 32 brls.
 Copenhagen, 50 Wilson,
 Sons, & Co., Ld.
Potash—
 Rotterdam, 20 cks. Hutchinson
 & Son
 Antwerp, 97 pks. Wilson,
 Sons, & Co., Ld.
 Dunkirk, 35 cks. "
Pumice Stone—
 Messina, 10 cks. Wilson,
 Sons, & Co., Ld.
Saltpetre—
 Hamburg, 10 kgs. Wilson,
 Sons, & Co., Ld.
 7 cks.
Soap—
 Rotterdam, 1 cs. W. & C. L.
 Ringrose
 8 Hutchinson & Son
 Bari, 93 Wilson,
 Sons, & Co., Ld.
 5
Starch—
 Ghent, 149 cs. Wilson,
 Sons, & Co., Ld.
 Bremen, 2,304 Veltmann & Co.
 Ghent, 20 Hutchinson & Son
Stearine—
 Antwerp, 20 bgs. Wilson,
 Sons, & Co., Ld.
Sulphur—
 Maffetta, 207 pks. Wilson,
 Sons, & Co., Ld.
 817
Tar—
 Hamburg, 43 bgs.

Treacle — Boston, U.S.A., 676 brls. Wilson, Sons, & Co., Ltd.	
Ultramarine — Rotterdam, 1 ck. Hutchinson & Son	
Bremen, 20 cs. 12 cks.	
Varnish — Antwerp, 7 cs. Wilson, Sons, & Co., Ltd.	
Waste Salt — Hamburg, 203 bgs.	
White Lead — Amsterdam, 24 cks. Hutchinson & Son	
Rotterdam, 21 W. & C. L. Ringrose	
Amsterdam, 64 "	
Wood Pulp — Rotterdam, 25 bls. Hutchinson & Son	
Hamburg, 18 "	
Fiume, 9 pks. Wilson, Sons, & Co., Ltd.	
Hango, 484 bls. J. Good & Sons	
Zinc Ashes — Antwerp, 10 cks. Bailey & Leatham, Ltd.	
Zinc Oxide — Rotterdam, 5 cks. Hutchinson & Son	
Zinc White — Rotterdam, 45 cks. Hutchinson & Son	

GLASGOW.

Week ending April 8th.

Alumina — Antwerp, 31 cks.	
Alumina Sulphate — Antwerp, 56 cks. 300 bgs.	
Aniline Salt — Rotterdam, 9 cks.	
Arachide Oil — Rotterdam, 1 ck. J. Rankine & Son	
Barium Chlorate — Rotterdam, 4 cks. J. Rankine & Son	
Barytes — Antwerp, 76 cks. 780 bgs.	
Boracic Acid — Leghorn, 9 cs.	
Colours — Antwerp, 10 cks. 1 c. Rotterdam, 5 cs. 111 pks. 33 b. 16. 17 bxs. Hamburg, 5 cks. J. Rankine & Son Jas. Currie & Co.	
Cottonseed Oil — New York, 30 brls.	
Dyestuffs — Alizarine Rotterdam, 36 cks. 809 brls. J. Rankine & Son	
Aniline Hamburg, 6 cks. 2 cs.	
Extracts Antwerp, 6 cs.	

Shumac Palermo, 550 bgs.	
French Chalk — Fiume, 170 bgs.	
Glucose — Philadelphia, 900 brls. New York, 1,200	
Glue — Rotterdam, 120 bgs. J. Rankine & Son	
Antwerp, 6 brls.	
Hamburg, 5 "	Jas. Currie & Co.
" 40 "	
Fiume, 140 bls.	
Infusorial Earth — Hamburg, 106 bgs. Jas. Currie & Co.	
Iron Oxide — Fiume, 26 cks.	
Lamp Black — Gothenburg, 25 cs.	
Manganese — Hamburg, 1 ck. New York, 79	
Manganese Acetate — Hamburg, 1 ck.	
Naphthaline — Hamburg, 1 ck.	
Phosphates — Antwerp, 560 bgs.	
Phosphate of Lime and Rock — Antwerp, 1,500 bgs.	
Potash — Rotterdam, 20 cks. J. Rankine & Son	
Hamburg, 60 dms. Jas. Currie & Co.	
Potassium Sulphate — Rotterdam, 6 cks. J. Rankine & Son	
Pumice Stone — Leghorn, 10 cs. Messina, 5 cks. 105 bgs.	
Salt — Hamburg, 100 bgs.	
Soap — Fiume, 72 cs. Marseilles, 1 bx. New York, 25	
Sodium Nitrate — Hamburg, 1,553 bgs.	
Starch — Fiume, 250 bgs. New York, 100 520 brls. 675 sks. Antwerp, 80 cs.	
Stearine — Antwerp, 25 bgs.	
Tallow — New York, 50 tcs.	
Tartar — Messina, 3 cks.	
Treacle — Philadelphia, 314 brls. New York, 300 Waddell & Bryson	
Gothenburg, 1 brl.	
Ultramarine — Rotterdam, 1 ck. J. Rankine & Son	

Varnish — New York, 9 brls. 1 hf.-brl.	
Waste Salt — Hamburg, 1,049 bgs. Jas. Currie & Co.	
White Lead — Rotterdam, 60 cks. J. Rankine & Son	
Wood Pulp — Gothenburg, 1,160 bls. Antwerp, 6 "	
Christiania, 546 "	
Drontheim, 580 "	
Zinc Ashes — Hamburg, 7 cks. Jas. Currie & Co.	
Zinc Oxide — New York, 120 brls. Antwerp, 25 "	
Hamburg, 50 cks.	
Zinc White — Rotterdam, 25 cks. J. Rankine & Son	

TYNE.

Week ending April 3rd.

Alum Earth — Hamburg, 20 cks. Tyne S. S. Co.	
Antimony — Hamburg, 214 bgs. Tyne S. S. Co.	
Antimony Fume — Rouen, 20 cks. J. Brown & Co.	
Barium Chlorate — Rotterdam, 350 bgs. Tyne S. S. Co.	
Barytes — Antwerp, 33 brls. Tyne S. S. Co.	
Cod Oil — Bergen, 32 brls. Drontheim, 6 cks.	
Colours — Hamburg, 2 cs. Tyne S. S. Co.	
Glue — Hamburg, 7 cks. 50 bgs. Tyne S. S. Co.	
Antwerp, 1 "	
Limestone — Antwerp, 5 cs. Tyne S. S. Co.	
Ochre — Rouen, 204 cks. Wm Young & Co.	
Soap — Rotterdam, 7 cs. Tyne S. S. Co.	
Sodium — Hamburg, 1 ck. Tyne S. S. Co.	
Starch — Rotterdam, 118 cs. Tyne S. S. Co.	
Antwerp, 78 "	
Stearine — Antwerp, 6 bgs. Tyne S. S. Co.	
Tartaric Acid — Rotterdam, 10 cks. Tyne S. S. Co.	
White Lead — Antwerp, 17 cks. Tyne S. S. Co.	
Wood Pulp — Christiania, 400 bls.	
Zinc Oxide — Antwerp, 80 brls. Tyne S. S. Co.	

Zinc White — Rotterdam, 25 cks. Tyne S. S. Co.	
---	--

GOOLE.

Week ending March 31st.

Alizarine — Rotterdam, 44 cks.	
Colours — Hamburg, 25 cks. Amsterdam, 8 "	
Dyestuffs (otherwise undecorated) Rotterdam, 382 cks. 87 cs. Boulogne, 55 "	
Farina — Hamburg, 350 bgs. Harlingen, 100 "	
Antwerp, 20 "	
Delfsdyhl, 3,63	
Potash — Calais, 12 dms.	
Saltpetre — Rotterdam, 100 bgs.	
Soap — Rotterdam, 3 cs.	
Soda — Rotterdam, 4 cks.	
Starch — Ghent, 195 cs.	
Tartar — Rotterdam, 5 cks.	
Waste Salt — Hamburg, 133 cks.	
Wood Pulp — Hamburg, 536 pks.	

GRIMSBY.

Week ending April 3rd.

Albumen — Hamburg, 5 cs.	
Caoutchouc — Antwerp, 2 cs.	
Chemicals (otherwise undecorated) Copenhagen, 3 cks. Hamburg, 9 9 cs. Rotterdam, 10 "	
Colours — Antwerp, 27 cks. Hamburg, 14 79 cs.	
Farina — Hamburg, 4 pks.	
Glue — Dieppe, 2 cks.	
Lamp Black — Helsingborg, 104 cks.	
Plumbago — Antwerp, 1 cs. Hamburg, 8 "	
Soap — Rotterdam, 40 cs.	
Starch — Antwerp, 250 cs.	
Wood Pulp — Malmo, 80 bls. Kragero, 621 L.	

EXPORTS OF CHEMICAL PRODUCTS**THE PRINCIPAL PORTS OF THE UNITED KINGDOM****LONDON.**

Week ending April 7th.

Acids — Shanghai, 36 pks. E. London, 19 Durban, 20	
Alkali — Boston, 11 c. Melbourne, 7	
Alum — Calcutta, 12 L. 4 c.	
Ammonia — Shanghai, 18 cs. Delagoa Bay, 25 Calcutta, 8	
Ammonium Carbonate Rouen, 5 L. 10 c. Paris, 1 15	

Rotterdam, 10	15
Melbourne, 20 cs.	29
Sydney, 10	15
Ammonium Chloride — Reval, 2 L. Constantinople, 2 10 c. E. London, 6 kgs.	
Auckland, 1	20
Ammonium Sulphate — Ostend, 80 L. Demerara, 25	
Grenada, 15 c.	6
Rotterdam, 103 19	824
Casellon, 210	1,732
Amsterdam, 110	7,238
Bremen, 50	380
Dunkirk, 181 3	1,465
Martiniue, 100 5	1,187
Stettin, 50	400

Hamburg, 220	1,713
Amorphous Phosphorus — Calcutta, 2 cs.	
Anhydrous Ammonia — Cologne, 26 cyldrs.	
Bleaching Powder — Bombay, 6 L.	
Boracic Acid — Brisbane, 10 c.	
Borax — E. London, 60 kgs.	
Auckland, 1 L. 3 c.	
Carbolic Acid — Rotterdam, 20 brls.	
B. Ayres, 10 dms. 5 cs.	
Hamburg, 47 cks.	
Melbourne, 2	
New York, 120	

Carbon Bisulphide — Sydney, 1 L. 13 c.	
Carbonic Acid Gas — Jersey, 12 tubes Hamburg, 5 cs.	
Caustic Soda — Algoa Bay, 2 L. 13 L. Rockhampton, 5 Singapore, 7 Natal, 8	
Chemicals (otherwise undecorated) Gibraltar, 2 pks. Shanghai, 1 L. Cape Town, 1,050 dms. Natal, 900 2 cs. Calcutta, 4 cks. Adelaide, 30 E. London, 20	

43	128	Oxygen—	
1	24	Amsterdam, 1 c.	£35
1	25	Phosphoric Acid—	
8	27	Grenada, 30 bgs.	£35
13	20	Potash Salts—	
35	40	Auckland, 2 t. 3 c.	£190
3	40	Sydney, 20 cs.	168
4	32	Potassium Chlorate—	
1	15	B. Ayres, 1 t. 19 c.	£70
		Madeira, 4	71
1 c.	£7	Potassium Cyanide—	
1 t. 20	172	Sydney, 2 t.	£215
2	15	New York, 20 cks.	957
11	31	Fremantle, 4 c.	270
3	10	Adelaide, 2 14	180
2	12	Townsville, 15 3	990
9	980	Potassium Permanganate—	
2	14	Calcutta, 6 c.	£26
10	119	Potassium Prussiate—	
4	31	Hamburg, 3 cks. £18	
		Brussels, 4 t. 6 c.	276
		Philadelphia, 70	982
		New York, 84	1,248
		Genoa, 42	596
		Boston, 189	2,735
		Potassium Sulphate—	
		Grenada, 3 t.	£33
		Saltpetre—	
		Sydney, 1 t.	£20
		Oporto, 11 1 c.	244
		Auckland, 12	12
		Rio de Janeiro, 18	20
		Sheep Dip—	
		Launceston, 250 pks.	£163
		Hobart, 170	103
		Natal, 1 t. 2 c.	26
		Soda—	
		Cape Town, 1 t. 5 c.	£6
		Soda Crystals—	
		St. John's, N.B., 3 t. 6 c.	£8
		Newcastle, 10 15	24
		Malta, 2	7
		Sodium Bicarbonate—	
		Mombassa, 1 t. 5 c.	£6
		Sodium Sulphate—	
		Ghent, 50 t.	£100
		Sulphate of Lime—	
		Charente, 6 t. 19 c.	£35
		Sulphur—	
		New York, 1 t. 13 c.	£60
		Natal, 12 19	101
		Sulphuric Acid—	
		Algoa Bay, 10 cs.	£15
		Aden, 15	13
		Superphosphates—	
		Trinidad, 30 t.	£90
		Tartaric Acid—	
		E. London, 3 c.	£91
		Natal, 6 cs.	34
		Auckland, 5	28
		Melbourne, 10	55
		Sydney, 10	55

LIVERPOOL.

Week ending April 7th.

Alum—	
Lisbon, 9 t. 13 c. 1 q.	£48
Tampico, 1	2 5
Port Natal, 1	3 5
Ibrail, 9	1 42
Palermo, 2 1	3 10
Melbourne, 3 1	2 26
Guayaquil, 1 10	8
M. Video, 1 9	2 7
Vigo, 1 3	6
Galatz, 7 19	3 34
Durban, 3	15
Aluminium—	
Adelaide, 1 c.	£5
Ammonium Carbonate—	
Lisbon, 10 c.	£14
Genoa, 12	20
Gothenburg, 10	15
Hamburg, 1 t. 5 1 q.	36
Valparaiso, 2	62
Marseilles, 5	7
Rouen, 1 10	38
Vigo, 12	17
Ammonium Chloride—	
Hamburg, 1 t.	£19
San Francisco, 1 6 c.	94
New York, 20	900
Naples, 1 10	52
Alexandria, 2	64
Galatz, 2 3	69
Genoa, 3 3	53

Ibrail, 10	18
Catania, 4	7
Ammonium Sulphate—	
St. John's, Nfld. 2 t. 1 c. 3 q.	£16
Cullera, 25 11	205
Genoa, 21 4 3	170
Gd. Canary, 31	260
Palermo, 5 7 2	50
Sourabaya, 51 1 3	409
Rouen, 10	81
Hamburg, 15 10	122
Las Palmas, 82 2	670
Ghent, 29 18	240
Venice, 20 7 1	165
Valencia, 267 3 2	7,191
Aniline Salt—	
Piraeus, 5 t. 9 c.	£320
Antimony—	
Gijon, 4 c. 1 q.	£8
Barium Chlorate—	
Genoa, 6 c.	£22
Bleaching Powder—	
Ancona, 21 cks. 14 brls.	
Antwerp, 20	
Baltimore, 18	
Bombay, 25 cs.	33 bxs.
Boston, 405	
Calcutta, 47	
Fairwater, 50	100 kgs.
Havana, 50	
Naples, 17	
Newport News, 325	
New York, 281 25	
Philadelphia, 44	
Rouen, 90	
San Francisco, 50	
Tampico, 24	
Boracic Acid—	
New York, 1 t. 2 c.	£35
Portland, M., 16 3 q.	27
Copenhagen, 1	27
Kobe, 3 9 3	73
Borax—	
Antwerp, 10 t. 2 c.	£202
Lisbon, 1	20
Portland, M., 4 7 2 q.	87
Malmo, 5 3 3	104
Tampico, 10 1	10
Sydney, 1	20
Venice, 11	15
Genoa, 1 10	30
Barcelona, 1	20
Corunna, 1 9 3	19
Rosario, 1 9	20
Stettin, 13 1	260
Monterey, 2 6	41
Copenhagen, 2 15	66
Rotterdam, 77 12 1	1,455
Hamburg, 32 12 2	649
Kobe, 3 9 1	60
Calcium Chloride—	
New York, 4 t. 10 c.	£94
Brisbane, 2 18	6
Baltimore, 14 9	28
Carbolic Acid—	
Hong Kong, 1 t. 14 c.	£14
Hamburg, 7 2 q.	462
Santander, 2 3	96
Barcelona, 6	22
Dunedin, 4	49
Baltimore, 5 1	293
Rotterdam, 2 13 2	34
Calcutta, 5 8	88
Rouen, 4 10 1	86
Caustic Potash—	
New York, 18 t. 7 c.	£463
Melbourne, 3 13	115
Sydney, 4	6
Baltimore, 5	143
Caustic Soda—	
Alexandria, 85 dms.	
Antwerp, 15	
Bahia, 60	
Baltimore, 350 40 brls.	
Barcelona, 150 100 cks.	
Bari, 76	
Bilbao, 18	
Boston, 100	
Brisbane, 15	
Calcutta, 13	10 cs.
Cartagena, 10	
Ceara, 88	
Fairwater, 39	
Fiume, 15	
Fremantle, 102	
Galatz, 207	
Genoa, 207	
Hamburg, 105 20 kgs.	
Havana, 40	
Hio, 200	
La Guayra, 32	
Leghorn, 35	
Melbourne, 75 pks.	

Naples, 37	
N. Orleans, 50	
New York, 750	25 bxs.
Oporto, 15	
Philadelphia, 407	
Portland, Or., 15	
Portland, M., 130	
Reval, 50	
Rouen, 37	
San Francisco, 100	
Santander, 50 kgs.	
Seville, 120	
Sydney, 40 31	
Tampico, 56	
Tarragona, 15	30 cks.
Trieste, 8	
Trinidad, 18	
Chemicals (otherwise unites.)—	
Odessa, 12 t.	£319
Portland, O., 100 15 c. 1 q.	471
New York, 6	434
Boston, 21 16 2	1,150
Galatz, 10	16
Rotterdam, 4 2 7	
Pernambuco, 1 3	14
Calcutta, 25 17 2	75
Stettin, 1	33
Danzig, 12	21
Batoum, 2	3
Valparaiso, 1	9
China Clay—	
Bombay, 28 cks.	
Boston, 1,235 140 bgs.	
B. Ayres, 80	
Portland, M., 810	
Rio de Janeiro, 56	
Vera Cruz, 100	
Chromium Trioxide—	
New York, 1 t.	£60
Coal Products—	
Aniline Co.ours	
Philadelphia, 2 cks.	
Rouen, 1 cs	
Aniline Dyes	
St. John, Nfld., 1 cs.	
Aniline Oil	
Boston, 15 dms.	
Lisbon, 1	
New York, 33	
Aniline Salts	
Lisbon, 1 brl	
New York, 21 cks.	
Piraeus, 40	
Creosote Oil	
Lisbon, 250 brls.	
Naphtha	
Melbourne, 50 dms.	
Naphtalene	
New York, 10 cks.	
Naphthol Colours	
New York, 90 cks.	
Pitch	
Galatz, 118 brls.	
Ibrail, 45	
Rouen, 2 cks.	
Tar	
Galatz, 79 brls.	
Ibrail, 85	
Sulina, 20	
Copp r Sulphate—	
Iquique, 12 t. 8 c. 1 q.	£223
Constantinople, 1 5	19
Braila, 2	31
Dunedin, 1 5	21
Antwerp, 8 11 3	137
Danzig, 2 11 3	40
Malta, 12	9
Cagliari, 5 3	91
Hamburg, 5 10 1	9
Halifax, 1 6	22
Rouen, 51 11 3	997
Rio de Janeiro, 2 12 1	43
Cette, 311 14 1	5,690
Passages, 5 2	93
Bombay, 2 10	42
Trieste, 20	308
Marseilles, 63 19 1	1,135
Oporto, 20 2	325
Fiume, 9 19	152
Lisbon, 25 19 3	438
Bari, 63 17 3	1,025
Nantes, 72 17 1	1,261
Patras, 9 1	9
Venice, 133 12	2,194
Galatz, 4 5	84
Ibrail, 10	30
Bourgas, 1 10	27
New York, 1 5	23
Genoa, 103 16 2	3,249
Bordeaux, 303 9	4,036
Naples, 123 1 3	2,002
Ancona, 86 2	1,425
Leghorn, 139 1	2,240

Cream of Tartar—		
Valparaiso, 2 c.	£10	
Disinfectants—		
New York, 10 cks.	£80	
Madras, 1 t. 5 c.		
Calcutta, 3 10	51	
Dried Blood—		
Las Palmas, 6 t. 12 c.	£44	
Gypsum—		
Portland, O., 212 L. 12 c.	£627	
Lime—		
Kotonon, 4 t. 5 c. 2 q.	£7	
Magnesia—		
Hamburg, 50 cs.		
New York, 1 hd.		
Portland, M., 9		
Tampico, 5		
Magnesium Chloride—		
Ancona, 11 t. 7 c.	£97	
Rouen, 10 7 1 q.	25	
Manure—		
Mauritius, 50 t. 16 c. 1 q.	£301	
Pacasmayo, 49 1 1	250	
Mineral White—		
Tampico, 15 brls.		
Ochre—		
B. Ayres, 30 brls.		
Valparaiso, 10 10 kgs.		
Oxalic Acid—		
Barcelona, 5 t. 13 c.	£169	
Lisbon, 8 cks.	25	
Valparaiso, 4 7		
Boston, 23 14	652	
Paint—		
Alexandretta, 10 kgs.		
Algoa Bay, 2 cks.	15	
Antwerp, 15		
Arcibo, 5 43 cs.		
B. Ayres, 30 dms.		
Copenhagen, 14		
Coquimbo, 25 kgs.		
Corfu, 30 dms.		
Curacao, 14 pks.		
Flome, 53 kgs.		
Gibraltar, 4 16		
Halifax, 30		
Hamburg, 6 6		
Havana, 103		
Harar, 3 brls.		
Lagos, 2 120		
Lisbon, 64 dms.		
Manila, 50 kgs.		
Malta, 1 35		
Mannan, 3 12		
Mauritius, 8 21		
Medan, 61		
M. Video, 10 brls.		
New York, 3 12		
Old Calabar, 8 31		
Para, 20 brls.		
Rio de Janeiro, 61		
St. John's, N.B., 18		
St. Lucia, 6 brls.		
Sandy Point, 8		
Tonala, 6 11		
Tripoli, 4 brls.		
Valencia, 18 dms.		
Valparaiso, 47 10		
Vera Cruz, 1 5 250 kgs.		
Painters' Colours—		
Alexandria, 10 brls.		
Algoa Bay, 300 cks.		
Amsterdam, 50 bgs.		
Baltimore, 101		
B. Ayres, 81 cs. 45		
Colon, 15 14 kgs.		
Galatz, 11 30		
Halifax, 11 96		
M. Video, 40 46 cs.		
Opoto, 67		
Paraffin Wax—		
Calico, 30 bgs.		
Genoa, 50		
Hapsin, 50		
Syria, 10 cs.		
Phosphorus—		
Higo, 3 t. 10 c.	£570	
Shanghai, 15		
Pernambuco, 3 44		
Tampico, 9 1 q. 101		
Potassium Bichromate—		
B. Ayres, 5 c.	£11	
Pireus, 1 1 28		
Copenhagen, 5 9 180		
Potassium Carbonate—		
New York, 18 t. 5 c.	£177	
Galatz, 1 14		
Potassium Chlorate—		
Stettin, 7 t. 10 c.	£170	
Kingston, Jam., 40		

Ancona, 6	10	
Sydney, 10	20	
Shanghai, 2 10	34	
Hong Kong, 1 10	32	
Antwerp, 10	15	
Pernambuco, 1 10	66	
Genoa, 1 8	56	
Libau, 14 16	564	
Hiogo, 38 15	1,284	
Yokohama, 25	799	
New York, 52 10	1,783	
Rotterdam, 6 13	225	
Potassium Prussiate—		
Genoa, 1 t.	£56	
Rouen, 10 c.	57	
Salt—		
Amsterdam, 163 t.		
Antwerp, 120		
Baltimore, 495		
Boston, 260		
Brass, 7 10 c.		
B. Ayres, 54 18		
Calcutta, 3,229		
Cape Coast, 25		
Chittagong, 2,705		
Egwa, 50 4		
Galveston, 500		
Ghent, 100		
Gd. Bassam, 94 10		
Iquitos, 3 15		
Lagos, 11 5		
Melbourne, 50		
N. Orleans, 700		
New York, 350		
Old Calabar, 110 9		
Opobo, 100 6		
Porto Novo, 25		
Pt. Natal, 1,500		
Quebec, 803		
Reval, 50		
Rosario, 30 10		
Punta Arenas, 10 10		
St. John's, N.B., 935 8		
San Francisco, 158 10		
Sydney, 13 13		
Trinidad, 77 18		
Salt Cake—		
Baltimore, 342 t. 5 c.	£601	
New York, 4 10	81	
Lisbon, 30	66	
Saltpetre—		
Para, 1 t. 9 c. 2 q.	£33	
Maceio, 2 9	54	
Sheep Dip—		
Boca, 1 t. 5 c.	£50	
Punta Arenas, 7 6 1 q.	208	
B. Ayres, 67 8	1,607	
Soap—		
Alexandria, 81 bxs.	40 dms.	
Algoa Bay, 30 cs.	286	
Amsterdam, 30		
Antigua, 140		
Baltimore, 20		
Barbadoes, 200		
Belize, 600		
Bombay, 670 24		
Boston, 1 1		
B. Ayres, 425 bds. 9		
Calcutta, 100		
Cape Coast, 552 75		
Cape Town, 101 2		
Cartagena, 100		
Coquimbo, 230		
Curacao, 32 50		
E. London, 32 20 kgs. 300		
Gd. Canary, 300		
Halifax, 500 4,874		
Hamburg, 30		
Havre, 291		
Jersey, 40		
Kingston, 25 75		
Kotonon, 25 5		
Malta, 308		
Madras, 300		
Mauritius, 1,110		
Montreal, 50 100		
Mossel Bay, 1 1		
New York, 50 2		
Para, 750		
Portland, Me., 350		
Pt. Natal, 350		
Rotterdam, 350		
Rangoon, 110		
St. John's, N.B., 100		
St. John's, N.B., 1		
St. Thomas, W.I., 101		
Shanghai, 5,205		
Savanna, 231		
Sierra Leone, 1,500		
Singapore, 25 3,500		
Smyrna, 100		
Sydney, 100		
Trinidad, 350		
Valparaiso, 1		

Soda—		
Boston, 10 cks.		
Soda Alkali—		
Corfu, 35 brls.		
Genoa, 70		
Lisbon, 35		
Soda Ash—		
Antwerp, 600 bgs.		
Bombay, 4 cks.		
Boston, 101		
B. Ayres, 300 brls. 62		
Calcutta, 20 kgs. 99		
Colon, 90		
Fiume, 100 bgs.		
Genoa, 100		
Ghent, 100		
Gothenburg, 550 10		
Hamburg, 10		
Lisbon, 17		
Melbourne, 147		
M. Video, 50		
New York, 5,314 200 tcs. 279		
Philadelphia, 1,752 392		
Rio de Janeiro, 195		
Samarang, 12		
Sydney, 75		
Talcahuano, 100		
Venice, 120		
Yokohama, 315		
Soda Crystals—		
Boston, 150 bgs.	196 cks.	
B. Ayres, 53 kgs.	50	
Calcutta, 14 brls.		
Galatz, 20		
Malaga, 4		
Melbourne, 140		
N. Orleans, 420		
New York, 140 27 5		
Penang, 476		
Philadelphia, 40		
Sandy Point, 400		
San Francisco, 400		
Sodium Arseniate—		
New York, 10 cks.		
Sodium Bicarbonate—		
Algoa Bay, 120 kgs.		
Amsterdam, 140		
Antwerp, 230 6 cks.		
Bombay, 360		
Brisbane, 100		
B. Ayres, 17 cs. 12		
Calcutta, 240 8 bgs.		
Cape Town, 20 5 brls.		
Catania, 36		
Corunna, 40		
Freemantle, 30		
Galatz, 35		
Genoa, 180		
Halifax, 35		
Hamburg, 40 10		
Lisbon, 50		
Malaga, 50		
Marseilles, 50		
Melbourne, 50		
Nantes, 34		
Odense, 100		
Odessa, 310		
Paris, 60		
Pt. Elizabeth, 25		
Pt. Natal, 80		
Reval, 75		
St. John's, N.B., 100 10 bgs.		
Rouen, 101 9		
San Juan, 50		
Singapore, 40 4		
Stettin, 80 21		
Tampico, 60 24		
Varna, 20		
Veile, 20		
Venice, 290		
Vera Cruz, 20		
Yokohama, 2,015		
Sodium Carbonate—		
Boston, 140 brls.		
New York, £40		
Sodium Chlorate—		
Genoa, 20 kgs.		
New York, 100		
Rotterdam, 10		
Sodium Hyposulphite—		
Lisbon, 10 brls. 5 cks.		
Sodium Sulphate—		
Santander, 50 brls.		
Stannous Chloride—		
Kingston, Jam., 8 c.	£18	
Strontia—		
Hamburg, 50 t. 11 c.	£460	
Sulphur—		
Fairwater, 100 L. 1 c.	£425	
Tampico, 1 19 10		
Maceio, 19 3 q. 7		
St. John, N.B., 15 3 65		

Superphosphates—		
Cullera, 110 t. 14 c.		
Las Palmas, 10		
Tar Salts—		
New York, 2 t. 10 c.		
Tartaric Acid—		
Pireus, 2 c.		
Varnish—		
B. Ayres, 2 cs.		
Cadiz, 4 dms.		
Constantinople, 1		
Havana, 2		
St. John's, N.B., 15 17 brls.		
Valparaiso, 1 cs.		
White Lead—		
Bahia, 10 cks.		
Zinc Chloride—		
Boston, 1 t. 5 c.		
Bombay, 7 5		

MANCHESTER

Week ending April 7th

Albumen—		
Treport, 5 cs.		
Alum—		
Tunis, 7 brls.		
Beyrout, 25		
Ammonium Carbonate—		
Copenhagen, 15 kgs.		
Ammonium Chloride—		
Beyrout, 5 brls.		
Mersyne, 9 cks. 2		
Tunis, 2		
Tripoli, 5		
Aniline Colours—		
Reval, 6 dms.		
Hamburg, 10 kgs. 2 cs.		
Aniline Oil—		
Antwerp, 6 dms.		
Hamburg, 5		
Aniline Salts—		
Hamburg, 5 cks. 1 pt.		
Carbolic Acid—		
Rouen, 186 brls.		
Caustic Soda—		
Tunis, 35 dms.		
Chemicals (otherwise unad.)		
Alexandria, 20 cks.		
Beyrout, 10		
Mersyne, 9		
Tripoli, 5		
Colours—		
Beyrout, 1 frk. 7 cs.		
Jaffa, 12 brls.		
Copperas—		
Beyrout, 20 brls.		
Cottonseed Oil—		
Tunis, 8 brls.		
D'sinfectants—		
Bombay, 75 cks.		
Dyestuffs (otherwise unad.)		
Treport, 22 pks.		
Glue—		
Bombay, 1 cs.		
Copenhagen, 4		
Rotterdam, 10		
Linseed Oil—		
Alexandria, 10 brls.		
Alexandretta, 6		
Beyrout, 12		
Jaffa, 11		
Magnesium Sulphate—		
Alexandria, 68 brls.		
Naphtha—		
Treport, 100 cks.		
Naphthol Salts—		
Rotterdam, 8 cks.		
Paint—		
Beyrout, 2 brls.		
Jaffa, 7 cks.		
Paraffin Wax—		
Cyprus, 3 cs.		
Pitch—		
Treport, 25 t. 2 c.		
Soap—		
Alexandria, 11 cs.		
Treport, 5		
Bombay, 100		
Soda Crystals—		
Alexandria, 10 brls.		
Sodium Bicarbonate—		
Tunis, 20 kgs.		
Alexandretta, 21		
Beyrout, 90		

Silicate—
20 brls.
ria, 40 brls.
1 brl.
49 cks.
42 bgs.
ria, 30 dms. 1 brl.

HULL.

ending April 3rd.

um Sulphate—
150 dms.
501 bgs.
298
100
g Powder—
20 dms.
30 cks.
(otherwise undescribed)
15 cks.
21
148 229 1,230 dms.
4 541 slbs.
18 pks.
126 30
12 17
2 1
254
49
50
3 3
36 300
1
30 100
4
2
20
ed Oil—
869 c.
2,098
85
nople, 99
102
200
115
659
10,643
600
19
297
201

24 brls.
(otherwise undescribed)
10 cks.
10 bgs.
10
101 cks.
Oil—
55 c.
102
7
213
64
606
233
516
3,608 bgs.
200 dms.
4 cks.
Colours—
38 cks. 5 cs. 1 dm.
1
1 2 192
1088 100
6
nople, 11 1 44
52
15
8
1

Hango, { 14 pks.
Hamburg, 115 1
New York, 148
Odessa, 34
Reval, 5
Rotterdam, { 22 15 dms.
Stettin, { 83 1 220 pks.
Stockholm, 1 1
Phosphate Meal—
Harburg, 8,127 bgs.
Pitch—
Antwerp, 487 t.
Dunkirk, 200
Genoa, 102
Odessa, 100 cks.
Pyridine—
Fiume, 3 dms
Salt—
Hochfeld, 1,528 bgs.
Soap—
Amsterdam, 1 cs.
Bergen, 2
Drontheim, 127
Ghent, 1
Hamburg, 1
Starch—
Gothenburg, 5 cs.
Tallow—
Constantinople, 44 cks.
Genoa, 27
Hango, 1
Leghorn, 27
Stockholm, 8
Tar—
Amsterdam, 15 cks.
Christiania, 10
Drontheim, 15
Dunkirk, 30
Hamburg, 5
Marseilles, 25
Stockholm, 5 6 cs.
Treacle—
Bergen, 50 cks.
Drontheim, 25
Turpentine—
Christiania, 3 cks.
Varnish—
Antwerp, 7 cks. 1 cs.
Amsterdam, 2 dms.
Bombay, 1 20
Christiania, 1
Hamburg, 2 1
Marseilles, 3
Norroping, 2
Reval, 3
Stettin, 5
Whiting—
Trieste, 41 cks.

GLASGOW.

Week ending April 8th.

Ammonium Carbonate—
France, £70
Ammonium Sulphate—
Baltimore, 25 t. 8½ c.
Cette, 204 12¼
Rotterdam, 10
Hamburg, 60 18
Caustic Soda—
U.S.A., 144 t. 13½ c.
Philadelphia, 24
Chemicals (otherwise undescribed)
Rotterdam, £33
Coal Products—
Aniline Dye
Calcutta, £64
Benzine
Bordeaux, £80
Creosote Oil
Russia, £800
Pitch
Cette, £1,338
New York, 150
U.S.A., 272
Venice, 1,109
Bombay, 53
Hamburg, 120 t.
Danzig, 320
Tar
Calcutta, £150
Madras, 25
Hamburg, 42 cks.
Tar Oil
Hamburg, 1 t. 5 c.
Tar and Pitch
Bombay, £82

Coal Products (otherwise undes.)—
Rotterdam, £516
Copperas—
Bombay, £35
Extracts—
Malaunay, £65
Gelatine—
Canada, £73
Manganese Oxide—
U.S.A., £105
Ochre—
U.S.A., £25
Paint—
M. Video, £67
Natal, 79
New York, 100
Cape Town, £94 168
Painters' Colours—
Calcutta, £382
Bombay, 384
Algoa Bay, qty.
Rotterdam, 45
Paraffin Wax—
Bari, £25
Bilbao, 160
Italy, 155
Rouen, 50
San Sebastian, 45
Antwerp, 25
Fiume, 193
Bordeaux, 257
Cape Town, 79
Russia, 42
Potassium Bichromate—
Antwerp, £195
B. Ayres, 32
Paris, 206
Rouen, 532
Amsterdam, 210
Potassium Chlorate—
Sydney, £84
Potassium Cyanide—
Johannesburg, 4 t.
Rosin Oil—
Amsterdam, £50
Sheep Dip—
B. Ayres, £205
Soap—
Bombay, 2 t.
St. Lucia, 1 11¼ c.
E. London, 2 10
New York, 1 7½
St. John's, N'd., 1 7
Sodium Bichromate—
Paris, 5 t. 3¼ c.
Rouen, 17 13¼
Nantes, 5
Sulphuric Acid—
Natal, £20
Calcutta, 55
Colombo, 70
Madras, 75
Durban, 50
Tallow—
Bilbao, 5 t. 12 c.
San Sebastian, 11 3
Treacle—
E. London, 1 t. 10 c.
Randers, 4 16
White Lead—
Natal, £31

TYNE.

Week ending April 3rd.

Alkali—
Antwerp, 11 t. 8 c. 1 q.
Hamburg, 5 14
Amsterdam, 5 8 1
Copenhagen, 30 1 3
Alum—
Rotterdam, 15 t. 1 c. 3 q.
Barium—
Rotterdam, 1 t. 2 c. 1 q.
Hamburg, 1 4 2
Barium Carbonate—
Hamburg, 20 t.
Barytes—
Hamburg, 11 t. 19 c. 2 q.
Bleaching Powder—
Antwerp, 30 t. 4 c. 3 q.
Amsterdam, 13 12 3
Aalborg, 3 12 1
Kongsberg, 16 12 1
Copenhagen, 55 4 3
Rotterdam, 7 2 3
Horsens, 3 17

Borax—
Aarhus, 1 t. 3 c.
Caustic Soda—
Antwerp, 10 t.
Hamburg, 102 11 c. 1 q.
Kongsberg, 23 12
Copenhagen, 4 11 3
Rotterdam, 10 14 2
Venice, 13 10
China Clay—
Copenhagen, 10 c. 3 q.
Litharge—
Antwerp, 1 t. 4 c. 1 q.
Hamburg, 6 1
Amsterdam, 5 2
Magnesia—
Antwerp, 3 c. 3 q.
Hamburg, 1 t. 7 2
Genoa, 6 1
Manure—
Valencia, 100 t.
Paint—
Antwerp, 3 c.
Hamburg, 2 t.
Copenhagen, 2 7
Rotterdam, 10
Soap—
Hamburg, 4 t. 19 c. 3 q.
Soda—
Valencia, 9 t. 18 c.
Amsterdam, 33 9 2 q.
Aarhus, 5 12 2
Rotterdam, 6 18
Venice, 10 5 3
Soda Ash—
Hamburg, 11 t. 12 c.
Kongsberg, 55 1
Venice, 22 11 3 q.
Sodium Hyposulphite—
Hamburg, 10 t.
Rotterdam, 1 1 q
Sodium Sulphate—
Antwerp, 50 t. 2 c.
Tar—
Hamburg, 23 t. 11 c. 2 q.
White Lead—
Antwerp, 3 cks.

GOOLE.

Week ending March 31st.

Benzol—
Rotterdam, 169 cks.
Chemicals (otherwise undescribed)
Amsterdam, 40 cks.
Hamburg, 4
Coal Products (otherwise undes.)—
Amsterdam, 3 cks. 6 cs.
Antwerp, 8
Boulogne, 30 4
Ghent, 2 5 pks.
Rotterdam, 87
Colours—
Amsterdam, 200 bgs.
Antwerp, 10 cks.
Ghent, 1 cs.
Harlingen, 203 bgs.
Rotterdam, 5
Dyestuffs (otherwise undescribed)
Amsterdam, 1 ck.
Hamburg, 75
Rotterdam, 2 cs.

GRIMSBY.

Week ending April 3rd.

Alkali—
Rotterdam, 10 cs.
Caoutchouc—
Gothenburg, 5 bls.
Chemicals (otherwise undescribed)
Antwerp, 3 cks.
Dieppe, 7 20 cs.
Hamburg, 45 dms.
Coal Products (otherwise undes.)—
Dieppe, 228 cks.

PRICES CURRENT.

WEDNESDAY, APRIL 14TH, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt.	5/10½	8/9
" Glacial	"	40/-	
Arsenic S.G., 2000°	"	1 4 0	
Fluoric	per lb.	0 0 3½	
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10	
" (Cylinder), 30° Tw.	"	0 3 0	
Nitric 80° Tw.	per lb.	0 0 1½	
Nitrous	"	0 0 1½	
Oxalic	nett	0 0 3½	
Phosphoric, 1750°	"	0 0 11½	
Picric	"	0 0 11	
Sulphuric (fuming 50%)	per ton	15 10 0	
" (monohydrate)	"	5 10 0	
" (Pyrites, 168°)	"	3 0 0	
" " 150°	"	1 5 0	
" (free from arsenic, 145°)	"	1 7 6	
Sulphurous (solution) S.G. 1025	"	3 0 0	
Tannic (pure)	per lb.	0 1 2½	
Tartaric	"	0 1 0	
Arsenic, white powdered	nett per ton	23 15 0	
Alum (loose lump)	"	4 10 0	
Alumina Sulphate (pure)	"	4 2 6	
Aluminoferrous	"	2 3 6	
Aluminium (Ingot metal 98/99¼%)	nett per cwt.	7 17 6	
Ammonia, Anhydrous	per lb.	0 1 3	
" 880=28° B.	"	0 0 2½	
" =24° B.	"	0 0 1½	
" Carbonate	nett	0 0 3	
" Muriate	per ton	18 7 6	
" (sal-ammoniac) 1st & 2nd	per cwt.	35/- & 33/-	
" Nitrate	per ton	33 0 0	
" Phosphate	per lb.	0 0 4½	
" Sulphate (grey) London	per ton	7 11 3	
" (grey) Hull	"	7 11 3	
Aniline Oil (pure)	per lb.	0 0 8	
Aniline Salt	"	0 0 7½	
Antimony	per ton	31 0 0	
" (tartar emetic)	per lb.	0 0 9	
" (golden sulphide)	"	0 0 10	
Barium Chloride	per ton	6 15 0	
" Carbonate (native)	"	3 10 0	
" Sulphate (native levigated)	"	42/6 to 65/-	
Bleaching Powder, 35%	nett	6 7 6	
" Lignor, 7%	"	3 10 0	
Bisulphide of Carbon	"	12 0 0	
Chromium Acetate (crystal)	per lb.	0 0 6	
Calcium Chloride	per ton	2 2 6	
China Clay (at Runcorn) in bulk	"	15/- to 30/-	

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	nett per lb.	0 0 7
Magenta	"	0 3 9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0 0 8
Benzol, 90's	per gallon	0 2 5
" 50/90	"	0 2 4½
Carbolic Acid (crude 60°)	per gallon	0 2 6
" (crystallised 40°)	per lb.	0 0 8
" (liquid 95/97%)	per gallon	0 1 2
Creosote (ordinary)	"	0 0 2
" (filtered for Lucigen light)	"	0 0 2½
Crude Naphtha 30% @ 120° C.	"	0 1 1
Grease Oils, 22° Tw.	per ton	2 15 0
Pitch, f.o.b. Liverpool or Garston	"	1 3 0
Solvent Naphtha, 90% at 160°	per gallon	0 1 8
Copper	per ton	49 0 0
" Sulphate	"	17 10 0
" Oxide (copper scales)	"	44 10 0
Glycerine (crude)	"	37 10 0
" (distilled S.G. 1250°)	"	70 0 0
Iodine	nett, per oz.	0 0 9
Iron Sulphate (copperas)	per ton	1 10 0
" Sulphide (antimony siag)	"	2 0 0
Lead (sheet) for cash	"	13 2 6
" Litharge Flake (ex ship)	"	14 15 0
" Acetate (white)	"	23 0 0
" " brown	"	15 10 0
" Carbonate (white lead) pure	"	16 15 0
" Nitrate	"	1 0 0

Lime, Acetate (brown) (ex ship)	per ton	5 0 0
" (grey) (ex ship)	"	8 7 6
Magnesium (ribbon and wire)	per oz.	0 2 3
" Chloride (ex ship)	per ton	2 7 6
" Carbonate	per cwt.	1 17 6
" Calcined Magnesia	per ton	9 0 0
" Sulphate (Epsom Salts)	per ton	2 15 0
Manganese, Sulphate	"	16 0 0
" Borate	per cwt.	2 10 0
" Ore, 70%	per ton	3 10 0
Methylated Spirit, 61° O.P.	per gallon	0 1 8
Naphtha (Wood), Solvent	"	0 2 7
" " Miscible, 60° O.P.	"	0 2 8

Oils:—		
Cotton-seed	per ton	15 10 0
Linseed	"	16 0 0
Petroleum, American	per gallon	0 0 6½
Stearine	per ton	19 10 0
Phosphorus (yellow)	per lb.	0 2 2
" (red)	"	0 2 8
Potassium (metal)	per oz.	0 3 7
" Bichromate	nett per lb.	0 0 4½
" Carbonate, 90% (ex ship)	per ton	17 10 0
" Chlorate	per lb.	0 0 4
" Cyanide, 98%	"	0 0 11
" Hydrate (Caustic Potash) 90%	per ton	24 0 0
" " (Caustic Potash) 75/80%	"	20 15 0
" " (Caustic Potash) 70/75%	"	19 15 0
" Nitrate (refined)	per cwt.	1 1 6
" Permanganate	per cwt.	3 17 6
" Prussiate Yellow	per lb.	0 0 5½
" Sulphate, 90% (ex ship)	per ton	9 15 0
" Muriate, 80% (do.)	"	8 10 0
Silver (metal)	per oz.	0 2 4½
Sodium (metal)	per lb.	0 2 11
" Carb. (refined Soda-ash) 48%	nett per ton	4 15 0
" " (Caustic Soda-ash) 48%	"	4 5 0
" " (Carb. Soda-ash) 48%	"	4 0 0
" " (Alkali) 58%	"	3 17 0
" " (Soda Crystals)	"	2 5 0
" Acetate (ex-ship)	"	13 10 0
" Arseniate, 45%	"	15 0 0
" Chlorate	per lb.	0 0 4½
" Borate (Borax)	net, per ton	17 0 0
" Bichromate	per lb.	0 0 3½
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	"	9 5 0
" " (74% Caustic Soda)	"	8 2 6
" " (70% Caustic Soda)	"	7 2 6
" " (60% Caustic Soda)	"	6 2 6
" " (pure liquor 90° Tw.)	"	3 15 0
" " 77/78% powdered (99% hydrate)	"	13 10 0
" Bicarbonate	"	6 10 0
" Hyposulphite	"	5 5 0
" Manganate, 25%	"	15 0 0
" Nitrate (95%) ex-ship Liverpool	per cwt.	0 8 0
" Nitrite, 98%	per ton	30 0 0
" Phosphate	"	12 0 0
" Silicate (glass)	per ton	4 10 0
" " (liquid, 100° Tw.)	"	3 10 0
" Stannate, 40%	per cwt.	3 2 9
" Sulphate (Salt-cake)	per ton	0 19 0
" " (Glauber's Salts)	"	1 7 6
" Sulphide	"	6 15 0
" Sulphite	"	5 0 0
Strontium Hydrate, 100%	"	8 0 0
Sulphocyanide Ammonium, 95%	per lb.	0 0 0
" Barium, 95%	"	0 0 0
" Potassium	"	0 0 0
Sulphur (Flowers)	per ton	7 10 0
" (Roll Brimstone)	"	6 10 0
" Brimstone: Best Quality	"	4 15 0
Superphosphate of Lime (26%)	"	2 15 0
Tallow	"	18 0 0
Tin Crystals	per lb.	0 0 0
" English Ingots	per ton	64 10 0
Zinc Spelter	"	17 10 0
" Chloride (solution, 100° Tw.)	"	5 0 0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

SATURDAY, APRIL 24. 1897.

Vol. XX.

Contents.

PAGE	PAGE
..... 281	German Chemical Dividends..... 287
ent Act 282	Exports of Alkali and Bleach..... 288
..... 283	Trade Notes 288
Complete Speci-..... 283	Tar and Ammonia Products 288
..... 283	Miscellaneous Chemical Market .. 288
e Rand 283	Liverpool Oil and Colour Market.. 289
Act 283	The Metal Markets..... 289
..... 284	West of Scotland Chemicals 289
ies 284	Hull Paint, Oil, and Colour Report 289
Composition of 284	Tyne Chemical Report 290
..... 284	New Companies..... 290
ato Experiments 285	Imports..... 290
revival of Sulphate 285	Exports 293
at Law Abuse.... 286	Prices Current 296

Notices.

Communications for the *Chemical Trade Journal* should be sent by Cheques and Post Office Orders made payable to—

ROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

of Subscription, commencing at any date, of the *Journal*,—payable in advance,—including postage to all parts of the world, are as follows:—

(52 numbers)	12s. 6d.
Early (26 numbers)	6s. 6d.
ly (13 numbers)	3s. 6d.

invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

oblige by making their remittances for subscriptions by Office Order, crossed and payable to "Davis Bros."

ons for the Editor, if intended for insertion in the *Journal*, should reach the office not later than **Tuesday** of the week preceding.

ports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, and send only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and other Special Articles for Sale by Private Contract are accepted in the *Chemical Trade Journal* at the following rates:—

Words and under.....	2s. 6d. per insertion
Additional 10 words	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

Words and under.....	1s. 6d. per insertion
Additional 10 words.....	0s. 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements, are charged at the Tariff rates, which will be forwarded on request.

Advertisements intended for insertion in the current week's issue of the *Journal* should reach the office by **Thursday morning** at the latest.

CURRENT TOPICS.

THE SULPHATE OF AMMONIA SCHEME.

WE are able this week to place before our readers a scheme in regard to the betterment of sulphate of ammonia, which will be of interest to those engaged in what is now an extensive branch of the chemical industry.

Many rumours have filled the air of late, and when these first gained currency it was a significant and encouraging fact that the price of sulphate immediately began to improve. Some who had only given casual consideration to the points involved were inclined to think that they had achieved, in a moment, the amelioration that was obviously their due, but the decline of the last two or three weeks has proved the contrary. At the same time, the lesson taught by the rise must not be lost sight of in the gloom of the moment.

A commonsense review of the position of sulphate has long been called for, and now, not only is the time ripe, but the opportunity fittingly befalls.

The influential expression of opinion, voiced in the circular which appears elsewhere in this issue, knocks loudly at the door of every maker. One and all should look well into this matter. The correspondence that has been running in these and other columns has done much to clear the prospect, and it will be a matter for future repentance if every individual maker does not view carefully the vista that lies before him.

The small makers in particular will be wise to figure out their prospective levy, and also the benefits of an advance of even half-a-crown a ton on sulphate. To this class the levy is comparatively a small matter, but the good their mite does by affording evidence of unanimity of purpose, will prove their salvation, for they will enjoy the fruits of an advance just as much as those whose stake is a heavy one. There is, moreover, the precedent of the recent rise. If so slight an influence as a rumour could achieve so much as a rise of £1. a ton, a scheme which is sound in principle and approved by such preceptors should surely be capable of accomplishing equal results.

Already it would appear that the support of the many whose makes are small enough to be classed as one, has been given, since the name of the Sulphate of Ammonia Association appears in the list of signatories, in company with those who are irresponsible. It is therefore, if anything, more a matter for the small makers to consider than the large, and it will be a strange policy if the former do not see the wisdom of responding to the proposals which it is at last within their power to support. A little reflection upon the past history of sulphate and nitrate, coupled with a comparison of the present shipments and the possibilities of their future when focused through the scheme that is now propounded, will tell a tale that few makers can fail to appreciate. That appreciation will then only want expressing, and with the present means at hand let it be seen to—and expressed.

ENGINE AND BOILER TENTING.

The Bill, relating to the care of engines and boilers, which has been engaging the attention of Parliament, is one that has caused considerable complaint among those whose industrial interests are affected. It would seem, however, that, opposed as we are to the extension of grandmotherly legislation, the complainants have mostly taken a one-sided view of this Bill.

It is contended that in a works where several separate engines are used, these engines and the boilers that supply the steam are looked after by skilled workmen, because it would be contrary to an employer's own interests to leave valuable plant to the scant mercies of ignorant and inexperienced workmen.

This is no doubt a sound argument, and, being accepted as such, it is necessary to go a step farther, and ask whether the proposals in the Bill are so very unreasonable after all. Since only skilled men are employed, it should not be a great matter for them to obtain the necessary Board of Trade certificate and comply with the Bill. Were it possible, or compulsory on competitive grounds, to employ any class of labour for this purpose, the conditions might be considered irksome, but it is maintained that only the skilled are capable of the task of engine and boiler tenting. There is, moreover, another way of looking at this proposed certification. The responsibilities of employers are not diminishing with what is called the progress of civilisation, and anything that will help to lighten their cares can scarcely come amiss.

As a rule it is not until an accident has happened that the qualifications of an engine or boiler attendant are questioned, and it would be most satisfactory for the employer to be able to show that all his boiler and engine men were certified by the Board of Trade as competent. It at once suggests accidental circumstances as the cause of the mishap, to the exclusion of hints about negligence and incapacity. In the same way in engaging fresh hands, though experience alone can prove their merits, a certificate would greatly simplify the task of selection.

There is, however, a section of this Bill to which exception should most strongly be taken. We have indicated a few *pros* as opposed to the *cons* on the certificate question, but the exemptions that are inserted are most invidious. There is obviously not much to be said about the exemption of the Navy, of steamships having a Board of Trade certificate, or even of the locomotives belonging to railway companies, because all these engine tenters serve an apprenticeship, as it were, but to exclude "any boiler or engine used exclusively for domestic, agricultural, or farming purposes, or on any road traction engine or steam roller," is an unpardonable injustice to all manufacturers. It is just with boilers of this class that most care is necessary, yet, as a rule, the attendants are quite inexperienced. A man cannot work long in a factory or works without picking up some idea of how to look after a boiler, or an engine, but what domestic or farm servant has the slightest opportunity of doing so? We think those who mean to "do" this Bill to death had better work this exemption clause for all it is worth, and let the certificate point rest. Their chances of success will be all the greater.

DISCOVERY OF OIL IN HOLLAND.—Some excitement prevails at Maastricht at the discovery of an oil well in the neighbouring brick-fields. A firm of brick-makers had purchased an extra piece of land in which to extend their works, and on digging for water they struck an oil well, the oil apparently coming from the rocky formation of which a neighbouring hill is composed.

REFORM OF THE PATENT ACT.

At the last meeting of the Manchester Chamber of Commerce, Levinstein, in reporting upon the recent deputation from other commercial and industrial bodies to the Permanent Secretary to the Board of Trade, said that no one interested in the industry of the country ought to rest satisfied with the result of the striking illustrations of the failure of the section to accomplish its purpose, submitted to Sir Courtenay Boyle, no clear pronouncement had been given. At the interview Sir Courtenay Boyle received the deputation in the absence of the President of the Board of Trade—had stated that absolute refusal by a foreign patentee to receive a licence for working in this country was not a necessary precedent to the issue of a licence by the Board of Trade. A letter from the Board of Trade, dated the 19th March, in representation complaining of inability to get a licence from a particular patentee, it was stated that "it did not appear that foreign patentees had actually refused to grant the licence, the implication being that definite refusal was a condition precedent to the granting of a licence by the Board of Trade. Nothing like a comparison of these two answers was needed to indicate the necessity of section 22, which, indeed, was apparent on the face of the fact that the Board of Trade would never take upon itself the responsibility of deciding between the applicant for a licence and the patentee, who would fight every step and carry the case to the House of Lords to preserve his monopoly. There was no remedy for the grave injustice and injury done to British trade and industry by British inventors, except the passing of an amending Act of Parliament. Such an Act might very well be passed, remedying section 22, and waiting for a more comprehensive measure dealing with the whole of the Patent Act. In the coal-tar colour industry alone, 600 licences had been granted to foreign patentees in this country, and not 10 had been granted in their own States. Monopoly prices were paid for articles which were not the subjects of patents, and were therefore produced under conditions of open competition. A single illustration of the injustice and injury it would suffice. In 1889 a patent had been applied for in Germany in respect of a certain chemical process, but it was refused. It became "open" in that country. For the same process a patent was granted. Since 1889 a number of important inventions had been made in Germany in which the article produced by the invention was a constituent element. Each of these inventions had been the foundation of flourishing manufactures there, whereas in Great Britain the ingenuity of the inventor was paralysed owing to the monopoly created with reference to the original process. In all the articles made in consequence of this invention were made without restraint in Germany, whilst in England they were made under patents taken out by Germans. He had gone over the list of patents, and found that at least 1,000 articles were thus monopolised in England and free in Germany. Such a system gave an artificial and inequitable premium to the foreigner to compete in England against the English manufacturers, whose hands were tied. The Chamber had unanimously resolved that a letter should be addressed to the Secretary of the Board of Trade inviting an authoritative statement as to the conditions with regard to the "default" of the patentee to grant licences, the issue of licences by the Board of Trade itself, and as to the course it was proposed to take with regard to the petition of the Chamber for a licence under section 22 which has already been presented.

SOCIETY OF CHEMICAL INDUSTRY: Nottingham.—At the sixth meeting of the session will be held on Wednesday, the 11th inst., in the Coffee Room, Wyvern Hotel (adjoining the Midland Station), Leicester, at 7.30 p.m., when the following papers will be read:—1. An attempt to prepare methylene, Dr. J. J. S. F. I. C. 2. On the removal of mineral oil stains from dyed fabrics, S. J. Pentecost, F.I.C.—A convenient train leaves Nottingham at 7.15 p.m., arrives Leicester 7.15. Returning 9.55 p.m., arrives Nottingham 11.15.

ANILINE DYES IN SWEETS.—Dr. A. Wynter Blyth, in a paper issued on Saturday as public analyst for Marylebone, states that a large number of samples of sweets which he analysed the most of which were coloured with aniline dyes. He adds that the powers of these colouring matters are so intense that each contains only a minute proportion. Having regard to the fact that so many articles of food are now thus treated, Dr. Blyth has the daily consumption of aniline colours may easily become a source of physiological effects. Some of the aniline dyes are actively poisonous, but what effect minute doses of poisonous aniline dyes may produce is unknown. It can be affirmed that such are likely to produce forms of poisoning and conduce to general nerve disturbance. Hence some limit should be put to the use of such colouring matters, and those that are shown to be poisonous ought to be prohibited altogether.

The Patent List.

It is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

Finishing of Leather. G. and S. Honeyman and R. Arneil. 8,632.

Salt. B. C. Hinman. 8,671. April 5.

Means in Manufacture of Steel. C. H. Foote, W. R. Walker, and Clarke. 8,763. April 6.

Apparatus. N. S. Jenkins. 8,775. April 6.

Preparation of Fatty Matters and Production of Glycerine. E. G. Scott. April 6.

Paint. R. Hingston and J. C. Rankin. 8,811. April 6.

Copper Ores. W. Noad and W. Agate. 8,873. April 7.

Measuring Apparatus. A. Krippel. 8,882. April 7.

Lined Piping. A. Clarke. 8,954. April 8.

Transporting Sulphuric Acid. L. Couher. 8,976. April 8.

Lead and Zinc Ores. G. H. Blenkinsop. 8,990. April 8.

Wood for Charcoal Manufacture. D. A. Casalunga. 9,019.

Sts. T. C. Hutchinson. 9,030. April 9.

Nickel Sulphate. T. Savage. 9,099. April 9.

Idea, etc. E. O. Daniel. 9,106. April 9.

Batteries. L. Epstein. 9,118. April 9.

Use of Bicarbonate of Soda and Carbonate and Bicarbonate

tonia. A. J. Bambridge and G. Weddell. 9,161. April 10.

Air-Gas. F. Wilkins. 9,175. April 10.

Petroleum Engine Exhausts. J. Wilkinson and R. S. Mason. April 10.

NOTES OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

Means in and Apparatus or Means for Treating the Sludge or from Foul Waters and the like. H. W. Kearns, of Kearns, and Co., 4, South King-street, Manchester. Eng. Pat. 15,308. 1895.

Filter, drained by suitable pipes, is rectangular and covered with arches sprung from the baffling walls built in the tank. The arches form a flue for a furnace situated at one end of the last compartment communicating with the chimney. The filter has been charged with liquid sludge, and as much circumstances will permit drained away, the furnace is lighted, and hot gases allowed to pass over the surface of the filter, the sludge is thus dried. When organic matter is present, the filter is allowed to burn off, and then removed. Any metallic oxides can be recovered if sufficiently valuable. The system, though applicable to the sludge from dyeworks, is applicable to other sludges. There are three drawings.

Means in and Relating to Evaporating Apparatus chiefly adapted for Obtaining Salt from Brine. W. Shedlock, 37, Landor-pham. Eng. Pat. 7,997. April 15, 1896.

A modification of Patent 7796/96 (C. T. J. 517, p. 267). A series of tubes are fitted horizontally into an ordinary steam boiler, and are driven by spiral conveyors. The ends of these tubes are at both ends with box-like cavities. To the one brine is introduced while the other takes off the steam, and acts as a temporary reservoir for the salt discharged by the conveyor. Sometimes the tubes are provided with separate supply and collecting pipes so that the tubes themselves can be filled to only one-half full. There are five figures accompanying the specification.

Means in Apparatus for the Recovery of Gold, Silver, and Precious Metals. S. Vivian, Fairlawn, Southall, Middlesex. Eng. Pat. 8,967. April 28, 1896.

Process of the ordinary circular revolving drum used for the leaching process, hexagonal or polygonal barrels are used, subdivided internally by partitions extending from the axis to the sides formed by the sides. The triangular compartments so formed are lined with corrugated sheet copper plates, amalgamated in places. The sides of the barrel can be hinged to facilitate the removal of the compartments with the auriferous sand to be treated. The surface thus presented quickens the process, and the plates can be changed. Three figures show the details of construction.

A Combined Disinfecting, Cleansing, and Deodorising Mixture. W. Hanlon, The Rectory, Innishannon, Co. Cork. Eng. Pat. 8,712. April 25, 1896.

The preparation is a mechanical mixture of potassium permanganate and sodium carbonate in varying proportions. For cleansing sinks, greasy vessels, etc., the proportion of permanganate is two-thirds of an ounce made up to a 16-oz. pound with sodium carbonate. For flushing drains, and such like, 13 ozs. of permanganate are used with 3 ozs. of the carbonate. The quantity of water to be used for dissolving the mixture is not stated.

Process for Protecting Metallic Surfaces Against Chemical and Atmospheric Action. B. Politzer, 10, Rudolfplatz, Vienna, I. Eng. Pat. 10,864. May 19, 1896.

The metallic surface to be protected may be bright or oxidised, but must be made smooth. It is then coated by dipping or brushing with a layer of a drying oil, such as linseed, poppy, sunflower, cottonseed, etc., and heated for from thirty minutes to an hour at 200°C. to 400°C. In the case of linseed the oil is decomposed, and forms a mixture of linoleic anhydride and linoline, which constitutes a smooth layer, capable of clinging to the surface of the metal. It is unattacked by alcohol, ether, and most acids, and is able to withstand a temperature of 500°C. Mixtures of drying oils can be employed, and sometimes a certain amount of resin is added along with patent dryers.

GOLD OUTPUT IN THE RAND.

THE output of gold in the Witwatersrand for March proves to have been a record, the total being 232,066 ozs. The last record was made in August, 1896, with 213,418 ozs. The following figures show the returns for the last three years:—

	1894. oz.	1895. oz.	1896. oz.	1897. oz.
January	149,814	177,463	148,178	209,832
February ...	151,870	169,295	167,018	211,000
March	165,372	184,945	173,952	232,066
April	168,745	186,323	176,707	—
May	169,773	194,580	195,008	—
June	168,162	200,941	193,640	—
July	167,953	199,453	203,873	—
August	171,977	203,573	213,418	—
September ..	176,707	194,764	202,561	—
October	173,378	192,652	199,889	—
November ..	175,304	195,218	201,113	—
December ..	182,104	178,428	206,517	—
Total ..	2,024,159	2,277,635	2,281,874	652,898

THE NEW NITRATE ACT.

IT will be remembered that some time back the Chilean Government sanctioned certain concessions to purchasers of nitrate grounds who were in arrear (vide C. T. J., 458, p. 141). The following is a summary of the provisions of the Act, which has just been promulgated in Chile:—

(1.) The President of the Republic is empowered to grant three years and a half extension of time to purchasers in arrears of nitrate properties. Purchasers who have exploited 30 per cent. or more of the nitrate contained in the property at the time of the sale are not entitled to the extension. Purchasers who take advantage of the Act will be required to pay the total amount of their indebtedness before the termination of the extension if they should exploit 50 per cent. of the nitrate contained in the property at the time of the sale.

(2.) The obligations in arrears are to be liquidated, and the interest thereon, at the rate of 8 per cent. per annum, is to be capitalised till the date of the renewal of the obligations under this Act.

(3.) The total amount owing is to be divided into seven equal instalments, payable half-yearly. At the time of making the half-yearly payments interest at 8 per cent. is to be paid on the outstanding principal. The first instalment is to be paid on July 1, 1897.

(4.) Debtors in arrears of half-yearly instalments will be subject to a penal interest of 1 per cent. per month.

(5.) Extension will only be granted to purchasers who furnish security equivalent to that furnished under the Act of November 29, 1893. This security will remain in force until all the instalments are paid. Mortgages in force, and which correspond to the unpaid portion of the price of sale, will remain in force, and they will extend to the existing buildings and plant.

(6.) Debtors desirous of obtaining the benefit of the Act must do so within four months from February 23.

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before Lords Justices Lindley, A. L. Smith, and Rigby.)

THE BADISCHE ANILIN UND SODA FABRIK v. HENRY JOHNSON AND CO. AND THE BASLE CHEMICAL WORKS, BINDSCHEDLER.

THIS was an appeal against a decision of Mr. Justice North (C. T. J. No. 507, p. 114). The case is one of considerable interest and importance to the owners of English patents, which, as it was stated, are constantly infringed by manufacturers who carry on their business in foreign countries, such as Switzerland and Holland, in which there is no patent law, they selling articles made (without any licence) according to an English patent in small quantities to retail dealers in England, to whom the goods are sent from abroad by the post. When such a retail dealer is threatened with legal proceedings by the owner of the patent he at once submits to an injunction, but it is extremely difficult to detect all these small transactions, and if the patentee cannot sue the foreign manufacturer in this country he would (so it was stated) be practically without remedy.

The appeal was allowed, Lord Justice Rigby dissenting.

Lord Justice Lindley said:—In this case Lord Justice Smith has prepared a judgement in which I concur. The conclusion at which I have arrived is that the Court has no jurisdiction over the defendant Bindschedler, except so far as he has confessed such jurisdiction by appearing to this writ in order to have the merits of the case determined. If appearing to the writ he had applied to discharge the order of this Court giving leave to serve him out of the jurisdiction, the Court would, in my opinion, have been bound to discharge such order. But I proceed to consider the merits. I have come to the conclusion that the defendant Bindschedler has done nothing which amounts to making, issuing, exercising, or vending the invention of the plaintiff in this country. In other words, Bindschedler has not infringed the plaintiff's patent. The patent is confined to this country, and does not extend to Basle, where all the acts done by Bindschedler were committed. It is true that by reason of what Bindschedler did in Basle goods made by him there according to the plaintiff's patent came into this country, and no one has a right to use them here. But what the defendants did in Basle was lawful and not unlawful—lawful by the law of Switzerland and not unlawful by the law of England, which has no application there. This circumstance and the immateriality of the intention accompanying the act done destroy the analogy between such a case as this and those criminal cases with which Mr. Moulton ingeniously compared it, and of which Combe's case is a type. There a man in this country, and on shore, fired at and killed a man out at sea; it was held that his offence was committed within the jurisdiction of the Admiralty. I cannot think such a case a safe guide for the decision of the one before us. Bindschedler has no agent here for the importation of his goods, nor are they in fact in his possession or under his control in this country. It is true that he may be said to be aiding and abetting shrood importers here; but that neither makes him amenable to our jurisdiction nor makes him an infringer of the patent. See on this last point "Nobel's Explosives Company v. Jones." The appeal must be allowed, and judgment entered for the defendants with costs here and below.

Reports of Companies.

RIO TINTO CO., LTD.

THE report of the Rio Tinto Company states that the revenue account shows a credit balance of £748,014. There has been written off extension and development account and overburden account £26,335. After paying bond services, &c., there remains a balance of £699,032. The interim dividend of 18s. per share, paid in November, absorbed £292,500., and the directors now recommend a final dividend of 20s. per share, £325,000., leaving a balance to be carried forward in the revenue account of £21,532. The quantity of pyrites extracted during the year was 1,437,332 tons. An improved demand for sulphate of copper at remunerative prices has induced the directors to resume the manufacture of this article, and the production of the mines and Cwmavon in 1896 was 5,427 tons, of which 3,917 tons have been sold, and the balance carried forward at cost price. A demand is gradually springing up for iron ore, the surface deposits of which at the mines are very large, but at prices as yet which are not very remunerative. The reserve heaps contain 109,651 tons of fine copper, which stand in the Company's books at £4. 6s. 10d. per ton, and this figure being considerably less than their value it is not proposed, as stated by the chairman at the last annual meeting, to write them down further.

THE LAGUNAS NITRATE CO., LTD.

The action which has been instituted by this company against the Lagunas Syndicate, Ltd., and its directors, under the advice of the present counsel, with the approval of the shareholders in general which it was anticipated would be heard at the end of March in consequence of unavoidable delays, be heard now until Easter holidays. The counsel under whose advice the action commenced now advise that, in consequence of this delay, notification of the proceeds of working the nitrate during the last three-quarters ought to be made to the shareholders until determination of the action. The dividend money will be with the company's bankers.

THE SAN JORGE NITRATE CO., LTD.

The report for 1896 shows a gross profit on trading of £4 against £38,654. last year, notwithstanding the fact that in combination this company was restricted to six months' production in 1896, as compared with 11 months' work in 1895. The amounts received for interest and transfer fees, and deduction payments made for expenses of London office, &c., the net £43,591. To this must be added the sum of £8,331. brought making a total of £51,922. An interim dividend of 5 p. paid in October, and the directors now propose to pay a final dividend of 5s. per share, free of tax, making 10 per cent. for the place £10,000. to reserve or depreciation account, which will be at £60,000., and to carry forward £4,422.

VARIATIONS IN THE COMPOSITION OF LEAD.

BY DURAND WOODMAN.

IN the manufacture of red lead and orange mineral the ordinarily the property of first importance, since its chief a pigment; and, except so far as the colour is dependent on the of oxidation, the latter is not the subject of special consideration.

For certain purposes, however, the degree of oxidation is of importance, and having occasion to examine a large number of samples of from various sources, I adopted the method of digesting in solution of normal lead acetate, by which the litharge in excess in combination as Pb_2O_3 (or $2PbO.PbO_2$) is dissolved out and the samples were all examined qualitatively for anything which be considered as adulteration, but otherwise neglecting the amounts of silica, lime, oxide of iron, and carbon dioxide in the commercial article, for the preliminary and approximate way a series of results was obtained showing a variation amount of actual red lead from 41 to 92 per cent., as given in the following tabular statement:—

No. or mark.	1.	2.	3.	4.	5.	6.	7.	8.	9.
Red lead, Pb_2O_3	51.0	56.0	72.0	75.0	41.0	90.0	89.5	70.0	87.0
Litharge, PbO	49.0	44.0	28.0	25.0	59.0	10.0	10.5	30.0	13.0
No. or mark.	10.	11.	12.	13.	14.	15.	16.	17.	18.
Red lead, Pb_2O_3	60.0	84.0	50.0	60.0	58.0	77.0	66.0	90.0	73.5
Litharge, PbO	40.0	16.0	50.0	40.0	42.0	23.0	34.0	10.0	26.5

The figures for red oxide are in most instances a little higher of the insoluble impurities which have not been determined and, but the point which it is desired to bring out, is the large of monoxide in some samples, which has escaped oxidation; able by the lead acetate treatment; and which I believe, from with which it is so separated, has no part in the chemical composition of red lead. It seems to be simply an admixture and a measure of incompleteness and imperfection of the roasting or oxidizing process. In this connection some interesting data are given in Gmelin's book, Vol. v., p. 118, concerning the degree of oxidation corresponding to the length of time on the hearth of the reverberatory furnace roasting process.

"Red lead" prepared from massicot with

1 firing of 24 hours, contains 50.0 per cent. red lead (Pb_2O_3)	
2 firings " " " " " "	52.1
3 " " " " " "	58.1
4 " " " " " "	64.1
5 " " " " " "	66.2
8 " " " " " "	74.8

Red lead from "white lead" with 3 firings of 24 hours contains 95.3 per cent. red lead (Pb_2O_3).

The analyses which I have made seem to show that little improvement has been made in the methods of manufacture from the standpoint of more complete oxidation.

The lead acetate treatment has a special interest in that it the methods used by Dumas to demonstrate the individuality of oxide as a true chemical compound, although his results led him to suppose that it was a sesquioxide [Pb_2O_3] rather than a union of the monoxide and peroxide.

eparation of the lead monoxide and red lead by this method is
arp, prolonged digestion in the acetate solution failing to pro-
y appreciable change in the weight of red lead.

usual methods of analysis, depending on the decomposition of
lead into peroxide, which remains insoluble, and monoxide,
dissolves, no distinction is made between the monoxide in com-
according to the formula 2PbO , PbO_2 , and that which is pre-
excess and so easily removed by the acetate solution. An
of red lead is generally stated as follows:—

	Per cent.
Peroxide, PbO_2	26.4
Litharge, PbO	69.7
Impurities	3.5
	99.6

the formula Pb_3O_4 is accepted, and this compound is the
part of a red lead, no matter what may be the views held as
er the excess of PbO is a mere admixture, or in weak chemical
ion; it would seem more satisfactory for commercial work to
analysis as follows:—

	Per cent.
Peroxide of lead, PbO_2	26.4 per cent.
Equivalent to red lead.....	75.6
Lead monoxide (litharge).....	20.5
Impurities	3.5
	99.6

acetate method is used, we obtain the red lead figure directly;
is yielding the peroxide or its equivalent, the amount of per-
und should be multiplied by the factor 2.866 to give the
iding quantity of red lead.

DISCUSSION.

ard to the lead monoxide removable by digestion of red lead
on of lead acetate, Professor Sabin said that in making a
litharge and glycerine, considerable inert material, as sand
red glass, might be mixed with it without affecting the setting
while on the contrary, red leads would not make a cement
ed with glycerine. This would seem to indicate that the
is not in the same condition as if in simple admixture.—*four.*
m. Soc.

WILTSHIRE POTATO EXPERIMENTS

MPREHENSIVE report has been issued by the Agricultura
mmittee of the Wilts County Council on field experiments
in the county during the last five years. At Warminster,
potato-growing have been carried on with the object of ascer-
e results of (1) different manurial dressings; (2) close and wide
(3) varying weights of seed; (4) deep cultivation by hand
(5) change of seed; (6) spraying with sulphate of copper solu-
the manurial experiments the plots were variously dressed
yard manure, no manure, complete chemical manure, and
complete chemical manures. The complete chemical manure
ed by Dr. J. M. H. Munro, and it consisted of a mixture of
soda—or its equivalent in sulphate of ammonia—with mineral
phosphate and potash salts; the ingredients were so proportioned
manure yielded on analysis 5.37 per cent. of nitrogen, 4.2 per
soluble phosphoric acid, and 4 per cent. of potash. The re-
high yields obtained on the unmanured plots—averaging
ve years no less than $13\frac{1}{4}$ tons per acre—mitigate somewhat
y effective comparison of the results of the different manurial
employed. Although the average crop of the five years' trials
ar of farmyard manure (4cwt. per perch), yet in two years out
the complete chemical manure (9lb. per perch), gave by far
return, and at considerably less cost. The five years' average
at the rate of 17 tons 10cwt. per acre with farmyard manure,
tons 18cwt. per acre with the complete chemical manure,
the land is fairly good, it does not seem expedient to use more
per acre of the complete manure, as the extra crop obtained
ger dressing does not pay for the extra cost involved. The
e of a supply of nitrogen in any system of manuring potatoes
is illustrated, the average yield obtained from dressings
potash and phosphates only being barely 14cwt. per
excess of that obtained without manure. There is
decided loss by the omission of nitrogen, the small
in the potash and phosphates being insufficient to cover the
e dressings. With regard to width of planting, the usual
the district is to allow a distance of 18in. to 24in. between
and of 10in. to 15in. between the sets. During five years of
tal close planting the distances were varied between 21in. by
d 19in. by 12in.; similarly, for wide planting, between 31in.
and 28in. by 14in. The former gave an average yield at the

rate of 16 tons 5cwt. per acre, and the latter at the rate of 15 tons 3cwt.
It would appear that, in general work, about 21in. by 15in. are the
desirable planting distances. As to weight of seed, is it more advan-
tageous to plant cut sets of large tubers or uncut tubers of smaller size?
As a rule, the results indicate that the heavier weights of seed tubers
gives the best returns, and that whole and cut tubers of the same weight
do not vary much in cropping powers, though what advantage there
may be belongs to the whole tubers. The average results of large seed
against small cut seed in two years showed a gain of 4 tons 17cwt. per
acre. Some remarkable gains, ranging from three to eight tons per
acre, were secured by the use of Imperator seed from distant localities,
when the results were compared with the crops obtained from seed of
the same variety grown on the spot. As regards spraying the crop with
sulphate of copper as a check upon the potato disease, the net
gain of 1 ton 13cwt. per acre, on the average of four years' work with
all varieties of potatoes, demonstrates the value of the treatment; the
gain is much greater if the early varieties are omitted and the compari-
son is restricted to the average results of main crop and late varieties.
The *bouillie bordelaise* employed was composed of 2lb. of sulphate of
copper, 1lb. of quicklime, and 10 gallons of water.

SCHEME FOR THE REVIVAL OF SULPHATE.

THE following circular letter was sent out to sulphate of ammonia
makers on the 17th inst. The proposals therein are worthy of
the very fullest consideration, and are as follows:—

The long continued depression of this article and its low market
value, compared with that of nitrate of soda, have much exercised
manufacturers, and it is generally felt that some steps should be taken
to remedy this state of affairs. With this end in view, an informal con-
ference of a committee, representing the Sulphate of Ammonia
Association, and several of the largest outside makers, has taken place.
The meeting was an influential one, as is shown by the fact that the
gentlemen present represented a production of over 100,000 tons, out of
a total of 180,000 tons, the estimated annual make of the United
Kingdom. The position and prospects of sulphate of ammonia were
fully considered, and it was agreed that, admirable as the efforts and
work of the Sulphate of Ammonia Association has been, and, admitting
the great benefit which the trade has derived from the liberal distribu-
tion of statistics and literature on the subject of sulphate of ammonia
and its uses—a more systematic and combined action on the part of
those interested is needed to restore the article to its proper position in
the chemical manure market.

The Sulphate of Ammonia Association has never had sufficient funds
at its disposal to enable it to do more than collect and publish statistics,
etc., and the Conference recommends that all sulphate of ammonia
makers be requested to subscribe annually a sum not exceeding 6d. per
ton on their yearly production, and that the fund thus raised be disposed
of by a committee elected by the contributors themselves, in such a
manner as they may from time to time decide, the intention being to
follow on somewhat similar lines to those adopted by the Permanent
Nitrate Committee, whose action has benefited the nitrate of soda
market in a very remarkable degree.

The following suggestions were made:—

- 1st.—To offer prizes to all Agricultural Societies in the United Kingdom.
- 2nd.—To employ properly qualified travellers and experts to attend markets, agricultural shows, meetings of Agricultural Societies, Chambers of Commerce, &c.
- 3rd.—To employ eminent chemists and agriculturists to conduct special experiments to demonstrate the merits of sulphate of ammonia compared with nitrate of soda, and to bring the results of such investigation to the notice of farmers and others.

If you think well of the scheme, we shall be glad to hear that you will join in it, and we may add that it will not be proceeded with unless a majority in the trade supports it.

Yours truly,

W. G. BLAGDEN (Gas, Light, and Coke Co.)
F. LIVESSEY (South Metropolitan Gas Co.)
ROBERT ORR (for James Miller, Son & Co., and the
Scottish Mineral Oil Association.)
FORBES, ABBOT, & LENNARD (for themselves and the
Standard Ammonia Co.)
BROTHERTON & CO.
THE SULPHATE OF AMMONIA ASSOCIATION.
HARDMAN & HOLDEN.
R. & J. DEMPSTER.
SADLER & CO.

Replies should be addressed to COLONEL SADLER, Mayor of Middlesbrough.

EXAMPLES OF PATENT LAW ABUSE.

(Concluded from p. 271.)

Example 3.—A large British manufacturer of coal tar derivatives addressed a request for a licence to the German Company just referred to, for the reason (a) that the patent is not worked in this country, and (b) that he is prevented from working to the best advantage an invention of which he is possessed. The patent is taken out in 1889. The applicant's request is dated March 6th, 1897.

The following reply was received:—

"We acknowledge receipt of your letter of 6th inst., but before replying to the question contained therein, you would oblige by letting us know for what purpose you are desirous of acquiring the licences referred to."

To which the following reply was sent:—

"March 13th, 1897."

"We beg to acknowledge receipt of your favour of the 11th, and in reply desire to say that we cannot see any reason for letting you know the purpose for which we are desirous of obtaining the licences beyond what we have already stated in our letter of March 6th, viz., that we desire to have licences under Section 22, Clauses A and C."

"Your patent is *not being worked* in this country, which is sufficient reason for our application to you for a licence, and, further, we are prevented from working or using to the best advantage an invention of which we are possessed."

Foreign patentee's answer:—

"We beg to acknowledge receipt of your letter of 13th inst. We note that you are unable or unwilling to let us know the purposes for which you are desirous of acquiring the licences in question, and that you can or will not name the invention the working or using of which you say you are prevented from by our patents. Under these circumstances, and as we are working our patents in your country, we cannot grant you the licences required in your letters of the 6th and 11th inst."

To which the applicant replied:—

"In reply to your letter of March 16th, you are scarcely right in saying that we are unable or unwilling to let you know the purpose for which we are desirous of acquiring the licences in question. What we said was that we cannot see any reason for letting you know the purpose beyond that we desire to have licences of the patents specified under Section 22, Clauses A and C. This we considered a sufficient answer to your question, as it must be evident that if anybody applies for a licence under Clause A that he wishes to work the patent, and under Clause C that he is prevented from working or using to the best advantage an invention of which he is possessed—both of which are our reasons for our application to you."

"You state in your letter that you are working the patents in question in this country. If this is the case, we feel sure that you will not consider it unreasonable on our part to ask you in what town or in what place, and under what address you are working the said inventions in this country."

Foreign Patentee's answer:—

"March 24th, 1897."

"We are in receipt of your letter of the 19th inst., which, however, does not contain a satisfactory answer to our question. Under these circumstances we are of opinion that your object in applying for the licences in question is merely to avail yourselves of them for agitation purposes. We consequently see no reason why we should answer the question you now address to us."

This example furnishes a good illustration of the injury which is inflicted on our inventors and industries by our Patent Laws. The patent in question has never been worked in this country, and just as little have the same foreign patentees ever worked their Antipyrine Patent in this country, unless it was in a dummy shop, or on a ridiculously minute scale.

The corresponding German patent by the said foreign patentee has been declared by the German Law Courts on the petition of another Germany Company to be null and void on the ground of insufficient merit and want of novelty. In spite of this decision the foreign patentee upholds his English patent and has recently threatened the British manufacturer with proceedings for an alleged infringement of his said patent.

The position as regards this patent is therefore that while all German inventors and manufacturers are free not only to work it, but to introduce the patented material into new combinations for production of new direct dyeing colouring matters—for which there is a large demand in this country—our inventors and manufacturers are shut out by the monopoly which the foreign patentees uphold in this country, and when approached by a British manufacturer for the grant of a licence and when challenged to name the place where they work their inventions in this country as alleged all the satisfaction the British applicant could get out of the foreign patentees—was that they see no reason why they should answer questions as they are of opinion that the object in applying is merely for agitation purposes. It may no doubt be said that the English applicant who

had been threatened by the foreign patentee, might the circumstances, stand a chance of being successful in a British Court, but a first hearing in court with a large array of Counsel perils if well contested, costs from £800. to £10,000 and if fought more than £20,000. There is also scarcely any doubt that it would be fought out to the bitter end, at least this may be surmised from the well-known facts that one of the big German Companies puts aside large reserves for purposes of litigation. A pleasant prospect for the poor British inventor.

Example 4.—A German firm was applied to for a licence under Section 22, Clause A and C, the application reading:—

"We desire to have licences for your English patents, Nos. 15346 A.D., 1891, and No. 15346 A.D., 1890, and take the liberty of enquiring on what terms you will grant to us those said licences."

As no reply was received, another letter was sent on February 17th as follows:—"We wrote to you on February 17th by registered post enclosing you herewith copy of this letter. We are yet without an answer and trust that you will give us your answer by return of post, or we shall apply to the Board of Trade under Section 22, for the grant of your patents as specified in our previous letter."

In the meantime they wrote as follows:—

"March 3rd,

"Your letters of the 17th and 25th ult. came duly to hand. Section 22 to which you refer contains 3 clauses for compulsory licences, of which only the one named under C may possibly have come into question applying to us for such a licence."

"In this case please inform us of the nature of the invention of which you are possessed, and which part of our patents named under A and C prevents you from working or using the said invention to the best advantage. Without this information we cannot make you any offer. The more so as you certainly do not want a licence for all the inventions covered by these patents."

To which the following reply was sent on March 15th:—

"In answer to your letter dated March 3rd, we beg to state that we have received any reply from you to our first letter dated February 17th or to our second letter dated Feb. 25th, until to-day, we sent you copies of our letters to the Board of Trade."

"When referring to Section 22 we had not only in view Clause C but also Clause A."

"We desire to have a licence for the patents specified in our letters, for the reason that your patents are not being worked in this country, and also for the reason that we are prevented from working to the best advantage our inventions specified in the following applications, viz., No. 23523, Dec. 9th, 1895; No. 2946, Feb. 1896; No. 14144, June 26th, 1896; and also for two more applications which have not yet been published."

"We wish to have a licence, not for a part of your two patents but for the entire patents as specified by you."

A further letter was received from the foreign patentee:—

"March 15th,

"We duly received your letter of the 5th inst. As the specification of Patent No. 14144/96 has not yet been published by the Patent Office we request you to send us a copy of same. We would also like to know the tenor of the two applications referred to in your above letter, so that we may be able to consider the matter as a whole."

To which the British applicant replied:—

"In reply to your letter of the 15th, we have already given you the information that is needed, and we can only arrive at the conclusion from the contents of this and of your previous letter, that you are simply trifling with our application to you for the grant of licences for your patents Nos. 1741, A.D. 1891, and No. 15346, A.D. 1890, under Section 22."

Example 5.—"Please forward by special post a sample lot of Amidonaphtoldisulphonic H. 1:8:3:6; (or salt)."

"In attending to this small order, please state on the label the percentage of pure acid present, and oblige."

"July 24th, 1897."

"We are in due receipt of your memo. of the 22nd inst., and are unable to supply you with the one kilo of amidonaphtoldisulphonic acid H. which you would like to have."

"June 14th, 1897."

"We notice that you hold letters patent for the production of amidonaphtoldisulphonic acid H. in this country, and are obliged by your sending us one kilo, also quotation for quantity we require this product for the manufacture of new dye stuffs."

"January 16th, 1897."

"In reply to your request to send you one kilo amidonaphtoldisulphonic acid H., dated the 14th inst., we regret we cannot comply with same, having been obliged to decline several similar requests which we have received. We may mention on this occasion that the production of dye stuffs from this acid is patented to us in England."

" March 3rd, 1897.
 rring to your favour of January 16/97, we shall be glad to know
 you will grant us a licence for the manufacture of amido-
 sulphonic acid H. of your English patent 1742/91.
 shall also be glad to know what royalty you would demand."

" March 5th, 1897.
 are in due receipt of your favour of the 3rd inst., in reply to
 regret we cannot comply with your request without exactly
 for which purposes you want to use the acid in question."

" March 8th, 1897.
 are obliged to you for your favour of the 5th inst., and beg to
 the purpose for which we want the acid in question is to utilise
 in the manufacture of certain dye stuffs which we propose to
 await the favor of your further news."

" March 11th, 1897.
 duly received your favour of the 8th inst., and regret that you
 give us an exact answer to our question. Under the circum-
 are not able to grant the licence."

" March 10th, 1897.
 urther reply to your letter of the 5th March, 1897, we require
 H. for the manufacture of dye stuffs by methods, patents for
 have applied, viz.: 26210 of 1896, and 4360 of 1897.
 await the favour of your reply to our letter of the 3rd inst."

" March 15th, 1897.
 duly received your letter of the 10th inst., and beg to say in
 we cannot consider the matter without knowing the contents
 application for patent.

Therefore leave it to you to send us such copies, and remain,
 —"

A large German company was applied to by a British colour
 er for the grant of a licence under Section 22, Clauses A and
 ch the following reply was received:—

" 6.—" Referring to your letter of the 11th inst., before we
 ame we shall be glad if you will inform us in the first place
 tion it is of which you are possessed, that you are prevented
 king to the best advantage, and secondly what your views are
 flowing points:—

What royalties do you propose?

How is payment of same to be secured?

Would you be willing to have all the clauses usual in a licence
 as to keeping accounts, inspection of same, and of manufac-
 tory, &c., included?

Would you be willing to remark the goods manufactured and
 sold as we might desire?

Do you desire a licence under the whole, or what parts of the
 patents referred to?

On your views on the above points we will then reply further
 later.

Replies received by British applicants from foreign patentees
 are any comments. They speak for themselves.

Another example of the pernicious influence and the danger
 ne trade and commerce by existing laws, permit me to call
 tion to the well-known Alizarine case.

" 7.—Artificial alizarine is one of the most important colouring
 of which Great Britain uses in its trades and industries about
 of all that is produced in the world; formerly it was the
 of nature which supplied the demand, but the natural product
 is no longer grown, and the large tracts on which it was
 cultivated is now used for the world's supply of food stuffs.
 is now solely made from coal tar. For its production a number
 patents were granted to foreigners, principally of German
 y, whilst the rights to manufacture artificial alizarine in Ger-
 open to all—only another illustration of our Government
 patents to foreigners, who do not make an ounce of the
 in this country, for which their own Governments refused the

age German colour works who had taken up its manufacture,
 red by any patent laws, not satisfied with the large profits
 y had already realised from our consumers, formed a combina-
 resulted in running the price up to such an extent that be-
 em they cleared alone from this country about half a million
 s per annum. This combination elevated at its great financial
 sued a circular to his British customers about three months
 e lapse of their patents in 1883 threatening to stop the supply
 unless they agreed to extend their contracts at the exorbitant
 2s. 6d. per pound then charged, for twelve months beyond the
 expiration of the patents. Thanks to the united efforts and
 the British consumers their circular was ultimately withdrawn,
 the termination of the patents, the price of 2s. 6d. per pound
 n by-and-bye to 9d. per pound. Had it pleased the German
 ion to keep in force the circular, tukey red dyers, printers, and
 s, each and all of them, would have been, at least for a time,

at its mercy; it might even have altogether stopped our export trade in
 turkey red or alizarine dyed goods by exacting prohibitive prices from
 consumers, and thus diverted this important branch of the dyeing and
 printing trade, also into the hands of German manufacturers and mer-
 chants. A little reflection must make it clear that although disaster
 was fortunately prevented, similar dangers are constantly threatening
 not only our industries, but the whole trade and commerce of this the
 greatest industrial country in the world, as long as we grant monopolies
 to foreign patentees which their own Government refuses to grant to
 them, and as long as we do not compel them to produce in this country
 the articles for which they have got protection from the British Govern-
 ment.

Now, considering the magnitude of the question involved, which is
 of national importance, affecting the interest of every British working
 man, every householder, small and large traders, and manufacturers
 alike, I ask whether you will not consider it expedient to take steps to
 have a short Bill passed without delay to amend Section 22, which as it
 stands is a crying injustice to British labour. It may then be expedient
 to appoint a Royal Commission to investigate the working of the
 entire Act.

PROPOSED AMENDMENT.

If on the petition of any person it is proved to the Board of Trade
 that (a) the patent is not being continuously worked in the United
 Kingdom within three years from date of application, and in quantities
 sufficient to supply the public, or (b) any person is prevented from
 working or using to the best advantage an invention of which he is
 possessed, the Board shall order the patentee or his representative to
 grant licences on such terms as to amount of royalties, security of pay-
 ment, or otherwise as the Board, having regard to the nature of the
 invention and the circumstances of the case, may deem just, and any
 such order may be enforced by mandamus.

GERMAN CHEMICAL DIVIDENDS.

THE Meister, Lucius, and Bruning Dyeworks Company, of Hochst-
 am-Main, has declared a dividend of 28 per cent. for 1896,
 as against a similar dividend for each of the three previous years and 26
 per cent. for 1892. The gross profit balance showed an increase of
 £41,650 as against the previous year, but on the other hand the general
 charges were also increased; the appropriations to the various accounts,
 moreover, which were decreased in 1895 to the extent of £15,000., were
 again increased last year to the extent of £8,150. The net profit,
 £341,555, shows an increase of about £32,000. for last year as against
 1895, but the dividend at the same rate absorbs £21,000. more than in
 the previous year, as, for the first time, the full share capital of £750,000.
 participates in the distribution. The whole of the company's works
 were fully employed last year, and the demand for aniline dyes again
 noticeably increased; the demand for alizarine fell in consequence of
 the Presidential election in the United States, and the famine and
 plague in India. Considerable extensions of the works and new instal-
 lations have become necessary in consequence of the increased demand
 for the company's products and the manufacture of new products, and
 a further considerable outlay of capital will therefore be required. The
 selling prices again almost generally declined, aniline oil and a few
 other products being the exceptions, in consequence of the higher cost
 of benzol; but these also have latterly again become cheaper. The
 anti-pyrine business has been severely affected by increased competition.
 There has continued to be a steady demand for the diphtheria cure, but
 foreign competitors are now producing it, and hence the demand from
 the company has been adversely affected. The introduction of the
 company's new product for agricultural use, nitragin, on the markets is
 costly and difficult, and it must, therefore, be some time before this
 branch of the business can be expected to be remunerative. In general,
 the prospects for the company's business during the current year are
 considered favourable.

The balance-sheet of the Badische Aniline and Soda Fabrik, of Lud-
 wigshafen-on-Rhine, for 1896, shows a profit of £400,938. for 1896, as
 against £394,988. for 1895. The appropriations to the extraordinary
 reserve fund and to the depreciation and repairs accounts absorb
 £107,637., as against £94,799. for 1895, and out of the remainder a
 dividend at the rate of 26 per cent. has been declared. A similar divi-
 dend was declared for 1895. It is proposed to increase the share
 capital of the company by £75,000., thus bringing the total up to
 £900,000.

THE SALT TRADE.—The official salt trade returns issued recently
 disclose an extraordinary revival in the trade. During March 70,700
 tons were exported, this being 33,800 tons in excess of March last year,
 and actually more than was shipped in January and February com-
 bined. From Liverpool there had been an increase of nearly 26,000
 tons, and Middlesbro over 9,000 tons. There is a slight falling off
 from the Ship Canal.

EXPORTS OF ALKALI AND BLEACH.

THE following returns, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries for the month of February, 1897, as compared with the same month of 1896:—

ALKALI.				
Port.	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	£	£
Russia	2,745	8,254	706	2,064
Sweden and Norway	4,215	3,584	1,073	612
Germany	3,085	4,532	1,015	1,353
Holland	8,825	5,317	1,885	1,130
France	4,755	3,397	1,742	1,261
Spain and Canaries	35,020	25,158	12,446	7,570
Italy	21,354	22,514	6,951	7,025
United States	159,822	156,099	35,101	35,010
Australasia	18,026	18,574	5,488	5,517
British North America ..	5,970	2,839	1,402	597
Other countries	76,208	79,400	22,857	21,377
Total	340,031	329,668	90,666	83,516

BLEACHING POWDER, ETC.				
Port.	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	£	£
United States	64,644	44,003	22,871	14,018
Other countries	28,111	29,438	10,252	9,703
Total	92,755	73,441	33,123	23,721

Trade Notes.

"THE PAPER-MAKER."—We have received a copy of the *Special World's Number* of this journal. Its somewhat late appearance is apologised for, and certainly the number, in regard to printing, paper, and contents, affords ample recompense for the delay. Many of the notices of business firms are more than mere statements of fact about the personnel of the firms, but contain technical information of service to paper-makers. The illustrations are above the average.

STRIKE AT THE LEEDS GASWORKS.—A strike commenced on Thursday amongst the gas stokers and others in the employ of the Leeds Corporation, owing to the introduction of mechanical stoking and new rules of working put into force with which the men allege they cannot comply at present. The strike is confined to the New Hurley Works. In the event of no settlement being arrived at, the hands at other works will be called out.

AN INSTITUTE OF INVENTIONS.—Mr. Harry J. Lawson, the founder of the safety bicycle industry, has offered, in commemoration of the Queen's Diamond Jubilee, to head a list of subscriptions with a sum of £5,000 for the foundation of an "Institute of Inventions." Subscriptions should be sent to the hon. secretary, Institute of Inventions, 34, Victoria-street, London, S.W. The site for the erection of a suitable building will be selected by a committee to be chosen from the subscribers.

SERIOUS EXPLOSION AT ROTHERHAM.—A serious explosion occurred on Tuesday at the Phoenix Bessemer Steel Works, Rotherham, resulting in five men being injured. The large compressed air pipe which works the steel converters burst, doing much damage. The report was heard a mile away. Thomas Garratt and Thomas Schofield received fractures of the skull and are in a critical condition. Henry Innocent and Joseph Barker were burnt on the head and arms, whilst Alfred Caroline was less seriously injured.

ARE X-RAYS DANGEROUS?—Dr. Moritz Benedict gives an emphatic denial in one of the Vienna medical reviews to the suggestion that the Röntgen rays are dangerous. Some cases in which the X-rays have produced unexpected physiological consequences have, he says, obtained undeserved publicity. For example, it happened that an engineer who tested repeatedly on his own person the quality of a number of tubes of his own manufacture suffered from an inflammatory affection of the skin; and it is true that an experimentalist lost the hair of his head. Inflammation of the skin is certainly to be apprehended when a person works with the rays for weeks and weeks at a stretch. But the rays are not to be blamed. The fault rests rather with an intensely electrified atmosphere, which produces a sensible prickling of the skin; and with the discharging appliances recently introduced there is no risk to the most careless operator.

THE GATES CRUSHER.—The Gates Iron Works in Chicago recently made some improvements in the Gates rock and ore crushers. They are now building and sending out a number of these machines.

EXPLOSION AT A CARTRIDGE WORKS.—An explosion occurred Wednesday last week at the Military Cartridge Works, Vincennes, Paris, while a quantity of fuses were being charged. Four persons were seriously injured.

GERARD BROS., LIMITED.—The first statutory meeting of holders of Gerard Bros., Limited, soap manufacturers, Nottingham, was held this week at the Albert Hotel, Derby. Mr. T. B. Gerard (chairman of directors) presided, and was assisted by Messrs. T. A. Gerard, J. B. Gerard, and J. Sadler (directors). The meeting was a good attendance of shareholders.—The Chairman said simply a formal meeting, but he would make a short statement of the shares of the company had been taken up, and they were in the premium. Then the extensions referred to in the prospectus being pushed forward with all possible speed. They were more extensive than was contemplated in the first instance, but the prospects justified this. There was a considerable increase in the so far this year as compared with the same period of last year the extensions referred to were completed they would be all out nearly three times as much as at present. The financial position of the company was completely satisfactory.—Mr. S. P. Derby he had watched the figures of the business for a long time, and what a steady increase there had been year by year. He proposed the chairman's statement be adopted.—Mr. Sadler seconded this was agreed to, a vote of thanks to the chairman terminated the meeting.

IMPROVEMENTS IN X RAY TUBES.—At the last meeting of the Camera Club, Mr. A. A. Campbell Swinton described and some improved forms of tubes by means of which X rays of penetrative capacities can be produced at will. This result is achieved in two ways—first, by altering the distance between the cathode and the anti-cathode, and, second, by employing cathodes of different sizes. In the first case the anti-cathode is connected to the anode to a sliding steel rod, so that it can be shaken along the axis of the tube and the distance between the cathode and the anti-cathode varied from one to three inches. Then, the nearer the cathode to the anode the greater the penetrative power of the X rays given off, or, being equal. In the second case he employs a tube with several cathodes of different sizes, and finds that the smaller the cathode the greater the penetration of the rays. The importance of these practical purposes lies in the fact that rays of different penetrating powers are required for photographing different objects. In the variations which always occur in the vacuum of tubes which are a fertile source of annoyance and trouble to the can within considerable limits be easily compensated for by varying the cathode. Mr. Swinton also described a number of experiments carried out to elucidate various points connected with the cathode charge. Among other things, he has tried the effect of using an anti-cathode of different metals, and has found that, while materials he employed give rays of much the same penetrative power there is a great difference in the quantity produced, platinum being far the best in this respect.

WILL OF THE LATE JOSIAH HARDMAN.—Judgment has been pronounced on the 5th inst., in the action of Hardman v. Hardman, in favour of the force and validity of the will which bears date 1896, of Mr. Josiah Hardman, of Wetley Abbey, Ch. Staffordshire, and of Milton, Stoke-on-Trent, chemical manufacturer who died on the 2nd October, 1896, leaving personal estate of value of £28,070. 15s. 8d. and of the net value of £12,074. 5s. 6d., probate has now been granted to the testator's widow, Mrs. Harriet Edna Hardman; to Mr. James Hardman, of Tunstall, chemical manufacturer; Henry James Williams, manufacturer's clerk. Mr. Hardman bequeathed to his solicitor, Mr. Arthur Price Llewellyn, £200; to the N. Staffordshire Infirmary £1,000; and to Mrs. Hardman a life policy with the Commercial Union Office for £1,000, a pair of horses, the use and enjoyment during her life of Wetley Abbey, and a life annuity of £1,500. If she should die there, or a life annuity of £1,000. If she should prefer not to take the life annuity, Mr. Hardman instructed the trustees to convey to her the building known as the Milton Institute, at Hanley, the building thereon, and the furniture in it to trustees for the benefit and advantage of the people of Milton. He left his residuary estate in trust to pay during the lifetime of Mrs. Hardman one-fourth of the income to his said brother James, one-fourth of the income to his brother's daughter Annie, one-fourth of the income to his brother's son John James, and one-fourth of the income to his brother's son Frederick William. It was the testator's wish that the Milton Works and the farms of Great or Big Eaves and Little Eaves should be sold within one year after his death, but the real estate is not to be sold till after the death of Mrs. Hardman.

Market Reports.

TAR AND AMMONIA PRODUCTS.

are once more assuming the old abnormal state—90's at 50/90's at 2s. 4½d., this state of affairs the enhanced value of toluol. Carbolic acids are steady, remaining at 2s. 6d., and 40% crystals at 8d. Liquid, a penny lower at 1s. 1d. Naphthas are firm, and solvent oil at 1s. 8d.; crude stands at 1s. 1d. Anthracene is weak, at 7d., and B 5d. to 6d., business having been done thereat. Steady, and fairly active at the old values. Pitch is in the position puzzling—nearest value is 22s. to 23s. f.o.b.

of ammonia is not encouraging. Prices are flat, and the market does not seem to present any prospects of activity. Prices are nearly away back to the rock-bottom values of last October. Station is £7. 5s., London outside makes figure at £7. 8s. 9d., £7. 10s. to possibly £7. 12s. 6d., Hull £7. 10s., and Leith to £7. 10s., all prompt. Nitrate of soda quiet at 8s. to

THE METAL MARKETS.

N, WEDNESDAY.—Pig iron: Scotch warrants closed at Middlesbrough 38s. 11½d. cash, and hematite 47s. 3d. : Chili bars, G.O.B.'s and G.M.B.'s, closed at £48. 15s. , and £49. to £49. 5s. three months. Tin firm: Straits 59. 13s. 9d. to £60. 3s. 9d. cash, and £60. 3s. 9d. to £60. 3s. 9d. three months; Australian, £61. 2s. 6d.; English ingots, 1. 10s. Lead dull: Spanish, £11. 17s. 6d.; English, £12. 6d. Silesian spelter, ordinary, £17. 5s. Nickel, 1s. 2½d. to £30. 10s. to £31. Quicksilver: First hands, £7. 5s.; ds, £7. 4s. Copper shares quiet: Cape, 2½d. to 2½d.; Libiola, 2½d. to 2½d.; Mason and Barry, 2½d. Tinto, 25½d. to 25½d.; Tharsis, 5¼d. to 6.

W, WEDNESDAY.—Market firm, and a small business. at 44s. 1d., 44s. 1½d., and 44s. 1d. cash; also at 44s. 4d. one month; buyers, 44s. 1½d. cash; sellers, 44s. 2d. one at 38s. 11½d. cash and 39s. 2d. one month; buyers, cash; sellers, 39s. Cumberland hematite done at 47s. 5½d. buyers, 47s. 3d. cash; sellers, 47s. 3½d. Middlesbrough buyers, 47s. 7½d. cash; sellers, 47s. 8½d.

CELLANEOUS CHEMICAL MARKET.

trade continues fairly brisk for the present, by reason of from the United States. Otherwise, trade remains quiet, very little alteration to record in prices. Caustic soda is for some time past, prices for prompt and forward being as to b. Liverpool, 77%, £9. 5s.; 74%, £8. 2s. 6d.; 70%, 60%, £6 2s. 6d., nett, 10-ton lots. Bleaching powder is a with good enquiry at £6. 5s. to £6. 7s. 6d., f.o.r., and 1. to £6. 15s., f.o.b. Ammonia alkali, 58%, steady at f.o.r., in bags. Leblanc ash, 1d. to 1¼d. per degree, quality. Soda crystals unchanged at 45s., f.o.r. Chlorates and soda remain at 3½d. to 4½d. per lb., respectively. ss. to 20s., f.o.r. Sulphate of copper, £17. 10s. to £17.

Sulphur firm at £4. 15s., f.o.r. Borax still offering in demand, and price weak at £16. 10s. to £17. per ton. lime, brown and grey, firm, at the advanced prices. Other d acetic acid quiet, but with tendency to higher prices. salts steady, but without sign of improvement, muriate at Carbonate, lump, 3d. per lb. Sal ammoniac, 33s. to 35s. or potash, caustic and carbonate, there is still a good and, and prices continue firm. Yellow Prussiate of potash, per lb. Cyanide, 10½d. to 11d. per lb. For sulphore is only little enquiry, and prices remain low. Aniline are rather weaker, but nominally, 7¼d. and 8d. per lb.

For green copperas there is still a heavy demand, and White powdered arsenic steady at £23. 10s. to £23. 15s., brand. Nitrate of soda firm at 7s. 10½d. per cwt. In generally, a quiet tone prevails in all the manufacturing

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

quiet, and the tendency of prices is in favour of buyers. been moving slowly at £19. 15s., and Saltpond at £17. In are steady, and Seville and Malaga have met with a

moderate inquiry. Linseed is the turn firmer, Liverpool makes in export casks now standing at 15s. 6d. to 16s. per cwt., according to quality. Cottonseed is unchanged, at 15s. to 16s. 1per cwt. for Liverpool refined. For spot castor oil is steady, and the demand is fairly good, with sellers at 2¾d. for good seconds Calcutta, and 2¾d. to 2¾d. per lb. for first pressure French. Tallow is quiet and unchanged in price. Resin is decidedly quiet, but so far there are no changes in prices, the full rates still being maintained. Spirits of turpentine are moving fairly well at the old price, viz., 21s. 3d. per cwt. Petroleum is slow of sale, with American at 5¾d. to 7d.; and Russian refined, 5¼d. to 5¾d. per gallon.

COLOURS.—Prices are steady, and practically without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £15, Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 90s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 65s. Umber: 40s. to 45s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The market has been disgeared, somewhat, on account of the Spring holidays, and it is hardly back into form yet. The feeling in sulphate of ammonia has remained indifferent, with prompt f.o.b. Leith value nothing over £7. 10s., and possibly a trifle under that figure. There is still nothing whatever moving in regard to forward business, and the views of Continental correspondents show as yet no improvement. Mineral oils and paraffins are entirely unchanged, dulness being the prevailing feature in all the lines except lubricating and gas-making oils, which still hold very firm at satisfactory prices. The common chemicals are rather slow of movement. There are one or two instances of weakening prices, such as chlorate of potash and borax. Sulphate of copper is the exception, being slightly harder.

Chief prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, soda ash, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, 48/52°, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, £17. 5s., and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4½d. less 5%, any port; nitrate of soda, 8s. 1½d. to 8s. 3d.; sulphate of ammonia, £7. 10s. prompt, f.o.b., Leith; sal ammoniac, first and second white, £35. and £33. nett. any port; sulphate of copper, £17. 10s. to £17. 15s., less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 6½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 86° £5. to £5. 5s., 88° £5. 15s. to £6. 5s., and 89° 89½° £6. 10s. to £7. Week's imports of sugar at Greenock were 84,661 mats cane unrefined, from East Indies.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—There has practically been no market here of any volume since last week's report, for most firms were closed from Thursday until Tuesday morning. Amongst the principal imports here to date against the corresponding period last year have been: Linseed, 177,729 qrs., against 192,701 qrs.; rapeseed, 38,256 qrs., against 16,307 qrs.; cottonseed, 72,476 tons, against 63,056 tons; oilcake, 3,146 tons, against 4,749; olive oil, 1,218 tons, against 2,379 tons. Linseed oil upon the week shows some improvement, being an advance in rates of rather over 10s. per ton, and from the amount in warehouse the confidence in an improvement is about general. The present quotations are: Linseed oil, very firm, spot, 13s. 1½d.; May-August, 13s. 10½d.; last four months, 14s. 1½d. per cwt. naked. Boiled and refined £1. to £1. 10s. per ton extra. Cotton oil remains very quiet: Spot, naked, 12s. 10½d. per cwt.; May-August, 13s. 4½d. per cwt.; filtered refined, £1. to £1. 5s. per ton extra. Crude ditto, spot, 11s. 9d. per cwt. Casks £1., and barrels £1. 10s. per ton extra. Candia and Malaga oil £31. per ton. Castor oil, pressed here, 2¾d. per lb.; and first pressure French, 3½d. per lb.; Calcutta, first pressure, 4d. per lb. Cod oil, £15. to £18. per ton. Turpentine unchanged. The best grades of resin easier, but common grades quoted about same prices. Oleines,

distilled and saponified, £16. to £18. per ton. Olive oil soaps, £15. 10s. nett, c.i.f. Hull. Yorkshire grease, £8. to £9 per ton.

CAKES experience a fair demand for the season of the year, but prices are little changed.

PAINTS—Manufacturers continue busy at high pressure, white and red leads unchanged. Dry mineral colours, £3. to £8 per ton. Ready mixed paint orders much competed for at variable prices according to quality; about £24. per ton. Imperial black varnish, £5. 10s. per ton. Paint remover, 25s. per cwt., in bulk. Venetian red, oxide of iron, blue, black, and ordinary colours in oil, from 10s. per cwt. Oak varnish, 5s. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

Business during the last few days has only been quiet owing to the holidays, there is, however, a fair enquiry, and orders should come in more freely as spring advances. Prices remain unaltered. Soda crystals, £2. 12s. 6d. per ton, gross weight, locally. Sulphur firm at £5 per ton.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett; do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady at 9s. per ton f.o.b. Tees.

COALS.—There is no change in the market, demand continues fairly good for best steam, bunker and gas coals for export. Prices are as under:—Best Northumbrian steam, 8s. 3d. to 8s. 6d. per ton;

second quality, 7s. 3d. to 7s. 6d. per ton; small steam, 3s. 9d. per ton. Gas coals, 7s. 6d. to 8s. per ton. Bunker 7s. 3d. to 7s. 9d. per ton. Household coals 10s. to 11s. per ton. Coke, 15s. to 16s. per ton.

New Companies.

Midland Chemical Works, Ltd.—CAPITAL £3,000, in 100 £3. cent. cum-preference shares of £10 each, and 2,000 £1. shares. This company has been formed to acquire and carry on the chemical artificial manure manufacturing business of Brown and Griffiths Red Hill, nr. Dudley, now carried on by J. P. Griffiths. Registered office: Red Hill, Dudley, Worcester.

Petroleum Fields Syndicate, Ltd.—CAPITAL £15,000, in 150 £1. each. This Company has been formed to acquire and develop oil lands, etc. The subscribers to the memorandum of association are: S. C. Whittle, 40, Carlingford-road, N., accountant; F. E. M. Hunt, 25, Arlingford-road, Brixton, clerk; H. G. Trew, 213, Barry East Dulwich, clerk; A. G. Trew, Dashwood House, E.C., secret. F. Vernon, 2, Great Winchester-street, E.C., accountant; R. Nethercott, 31, Warren-street, Leyton, clerk; A. H. Verne Avenue-road, Kingston, S.W., gentleman.

Reeves Chemical Sanitation, Ltd.—CAPITAL £50,000, in 5,000 £1. shares. This company has been formed to acquire and develop British and French patents. The subscribers to the memorandum of association are:—R. H. Reeves, Cedardale, Putney, C.E.; V. Hunt, 25, Queensborough-terrace, W., gentleman; W. Brown, Leadenhall-street, E.C., engineer; W. Gilchrist, 45, Leadenhall-street, E.C., iron founder; A. R. Slaner, The Limes, Scrbiton, merc. H. Howe, 6, Epirus-road, Waltham Green, S.W., gentleman; T. Bone, 17, Brooke-road, Stoke Newington, accountant.

Saccharin Corporation, Ltd.—CAPITAL £200,000, in £10. shares. This company has been formed to amalgamate certain rights of W. Salomon and Co., Ltd. and the Soc. Chim. des Usines du Rhon to manufacture saccharine. The subscribers to the memorandum of association are:—M. A. Laing, 42, Half Moon-street, gentleman; C. O. Bonsor, M.P., 38, Belgrave-square, S.W.; Lord Westbury Hill-street, W.; N. Salomon, 165, Queen Victoria-street, merc. J. W. Wilson, 165, Queen Victoria-street, E.C., merc. A. G. Salomon, 1, Fenchurch-street, E.C., chemist; J. Parr, Queen Victoria-street, E.C., secretary.

IMPORTS OF CHEMICAL PRODUCTS AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM

LONDON.			GAMPHOR—			CREAM OF TARTAR—			France,		
Week ending April 10th.			Germany, 4 cks. L. & I. D. Jt. Co.			France, 15 cks. B. & F. W. Co.			Indigo		
Acetic Acid—			2 Grosscurth & Luboldt			Holland, 14 Kirkpatrick & Co.			E. Indies, 12 cts. R. Von		
Holland, 67 pks.	Little & Johnston		Caustic Potash—			France, 2 Ross & Deering			" 59 J. Hatton Hall		
Acetone—			Germany, 6 drs. J. M. Steel & Co.			" 15 W. C. Bacon & Co.			" 44 Parry & P.		
Germany, 20 drs.	F. Jones & Co.		20 Sawyer, Sons & Co.			" 2 Vokins & Co.			" 309 A. B. Curtis		
Alum—			Caoutchouc—			" 5 M. Ashby Ltd.			" 14 Parsons &		
Holland, 472 pks.	Ohlenschlager Bros.		Zanzibar, 75 c. L. & I. D. Jt. Co.			" 10 F. C. Devon & Co.			" 41 H. W. Jew		
Ammonium Chloride—			Rangoon, 5 Prop. Hay's Wf.			Cresoline—			" 22 Ekan		
Holland, 12 cks.	H. Lorens		Singapore, 400 Huttenbach & Co.			U States, 58 cs. Lunham & Moore			" 20 J. H. S.		
Antimony Ore—			Germany, 5 L. & I. D. Jt. Co.			Dextrine—			" 22 Duff		
Portugal, 5 t.	Blagden & Co.		E. Indies, 17 Hale & Son			Germany, 10 bgs. M. D. Co.			" 45 Wildmann		
Asbestos—			Zanzibar, 8 Major & Field			Dyestuffs—			" 10 Thomsett		
Germany, £45	J. Knill & Co.		Aden, 6 Prop. Bull Wf.			Anthracene			" 207 F. W. Helgers		
Barium Chlorate—			Rangoon, 64 Procter Bros.			France, 2 cks. Hernu, Peron & Co.			" 4 Seion, Laing		
Germany, 10 cks.	Craven & Co.		Zanzibar, 1 Clarke & Smith			Argols			" 81 E. Foster		
Barytes—			Singapore, 339 L. & I. D. Jt. Co.			Italy, 350 bgs. B. Jacob & Sons			" 320 Lewis		
Holland, 12	J. Greaves		Aden, 36 Wallace Bros.			Cochineal			" 3 Ernsthansen		
Bleaching Powder—			F. Indies, 32 Stewart, Holl & Co.			Canaries, 12 bgs. Sperling & Williams			" 472 334 pks. L. &		
Germany, 10 cks.	Petri Bros.		Chemicals (otherwise undescribed)			Cutch			Logwood		
Holland, 213 cks.	J. Greaves		Holland, £33 H. Lorens			Rangoon, 950 bxs. A. Howden & Co.			B. W. L., 3 t. Parter, G.		
Bromide of Iron—			" 15 G. Rahn & Co.			" 300 H. A. Litchfield			Myrabolams		
Germany, 15 cks.	Tug & L. Co.		Germany, 57 L. & I. D. Jt. Co.			" 250 Leach & Co.			E. Indies, 2,000 pks. A. B. Curtis		
Bromine—			" 439 T. H. Lee			Singapore, 600 Williams, Torrey & Co.			150 bgs. D. Sassoon		
Germany, 20 cs. A. & M. Zimmermann			" 705 A. & M. Zimmermann			Divi Divi			Naphthalene		
Caustic Soda—			France, 110 Mory & Co.			E. Indies, 600 bgs. Walker, Howard & Co.			Germany, 25 cks. Fleming's		
Chloride of Barium—			" 5 Hernu, Peron & Co.			Extracts			Adelaide, 5 t. Leitch		
Chloride of Potassium—			Germany, 100 Phillips & Graves			Holland, 3 bris. R. Baels & Co.			Germany, 5 t. Deering & Co.		
Chloride of Sodium—			" 100 H. Lambert			France, 28 pks. Leach & Co.			Natal, 10 A. & W.		
Chloride of Zinc—			Belgium, 18 O. Scholzig			Denmark, 2 Sorenson & Co.			" 53 Flack, C.		
Chloride of Calcium—			Holland, 25 M. Benschner			U. States, 100 Skilbeck Bros.			" 20 A. J. H.		
Chloride of Magnesium—			Belgium, 130 Typke & King			" 20 W. C. Barnes & Co.			" 52 Boucher, M.		
Chloride of Ammonium—			Germany, 45 Fuert Br.								

Turmeric E. Indies, 31 bgs.	Anderson, Weber & Co.
Parina Holland, 100 bls. 50 bgs.	E. & T. Pink Dunlop Bros. & Co.
Glucose Germany, 25 pks. 200 c.	Bennett S. S. Co.
U. States, 50 275 c.	H. Johnson & Sons
" 1,000 1,000	Beresford & Co.
" 100 550	M. D. Co.
" 80 80	L. & I. D. Jt. Co.
" 50 300	Page, Sen & East
" 100 600	T. J. Lipton
" 400 2,400	Deering & Robottom
" 250 250	G. Glarke & Son
" 1,250 1,250	Pearce, Pelly & Co.
" 1,500 1,500	Bellamy's Whf. Co.
" 250 250	Thames S. T. & L. Co., Ltd.
" 500 500	Humphery & Co.
" 250 250	Union Ltge. Co.
" 250 250	L. Norman & Co.
" 300 550	C. S. Lovell
" 552 3,087	R. G. Hall & Co.
Glue Austria, £416	M. D. Co.
U. States, 20	Armour & Co.
Belgium, 196	J. Barber & Co.
France, 30	H. & F. Wf. Co.
" 284	Burnett Bros. & Sons
Germany, 270	J. Barber & Co.
" 68	M. D. Co.
" 13	Steinhoff, Sons & Co.
France, 70	Herna, Peron & Co.
Holland, 80	G. Rahn & Co.
" 15	Phillips & Graves
France, 160	W. J. Davies & Son
Germany, 90	Herrmann, Keller & Co.
U. States, 21	L. P. D. Co.
France, 44	Duche & Sons
" 100	J. Harrison
Holland, 300	M. H. Voss
amp Black U. States, 110 pks.	W. Caudery & Co.
and Acetate France, 12 cks.	F. Smith
Charge Germany, 23 cks.	Petri Bros.
etallio Oxide Germany, 5 cks.	Brit. Anti-Fouling Co. Co.
ethyl Alcohol France, 20 dms.	A. H. Wintergill
Belgium, 2	Stein Bros.
" 6 cks.	Blagden, Waugh, & Co.
France, 20	W. S. Barber
Belgium, 1 csm.	"
ca E. Indies, £330	W. M. Smith & Sons
U. States, 52	W. Dixon
Germany, 242	T. H. Lee
olases U. States, 535 cks. 3,140 c.	W. Balchin
stre France, 165 cks.	W. Harrison & Co.
Holland, 2	6 pks. Phillips & Graves
France, 30	J. Kitchin, Ltd.
Spain, 400 bgs.	J. L. Lyon & Co.
osphate Rock Belgium, 337 t.	Anglo-Contl. G. Wks.
" 50	J. Gibbs & Co.
" 200	D. de Pass & Co.
" 225	Lawes Chemical Manure Co.
Pitch U. States, 65 bls.	T. Simpson
Germany, 100 cks.	W. F. Malcolm & Co.
Plumbago Germany, 46 cks.	O. Scholzig
" 170 cks.	E. & T. Pink
" 6 cks.	T. H. Lee
Germany, 37	B. Galloway
Ceylon, 353	J. Thredder, Son, & Co.
Germany, 14	R. Ulrich
" 5	Acton & Borman

Potash France, 100 c.	F. W. Berk & Co.
Potassium Carbonate Germany, 100 c.	R. W. Greeff & Co.
France, 100	W. E. Cole
Potassium Chloride Germany, 250 bgs.	F. W. Berk & Co.
Potassium Sulphate France, 250 bgs.	J. Harrison
E. Indies, 333	A. J. Humphery
Pyrites—	G. W. Wilson & Sons
Spain, 2,014 t.	C. Tennant, Sons, & Co.
Fyroligneous Acid France, 20 pks.	J. Harrison
Rosin Belgium, 16 bls.	Société John Cockerill
Saltpetre Germany, 78 cks.	L. & I. D. Jt. Co.
" 52	C. Wimble & Co.
E. Indies, 942 bgs	Lucas & Spencer's Wf.
Soda Holland, 2,634 c.	R. Waters
Belgium, 500	Lamb & Co.
Sodium Acetate Holland, 21 cks.	H. Lorenz
France, 30	"
Sodium Bichromate Germany, 400 c.	A. E. Neale
Starch Belgium, 670 cs.	E. & T. Pink
France, 350	W. E. Cole
" 350	E. & T. Pink
Holland, 900	Little & Johnston
U. States, 374 pks.	Beck & Pollitzer
Holland, 80 cs.	G. Rahn & Co.
" 65	Phillips & Graves
Belgium, 126 pks.	Union L. Co.
Germany, 6 cks.	T. H. Lee
" 280 cs	Phillips & Graves
Austria, 60 bgs.	M. D. Co.
" 50	London Glucose Co.
Belgium, 134 cs.	Becker & Wagner
N. Russia, 12	Karpeler & Co.
Germany, 47 pks.	Seaward Bros
Belgium, 252 cs.	F. Claydon & Co.
" 180	Leach & Co.
Stearine France, 230 bgs.	G. Boor & Co.
U. States, 25 cks.	Wilson's Furness & Co.
Belgium, 195 bgs.	H. Hill & Sons
France, 143	Beresford & Co.
Sulphur Italy, 300 t.	B. Jacob & Sons
" 100	G. Boor & Co.
" 200	W. C. Bacon & Co.
Sulphur Chloride Holland, 21 pks.	Typke & King
Tartaric Acid Holland, 3 pks	F. C. Devon & Co.
" 37	B. & F. Wf. Co.
Ultramarine Holland, 4 cks.	J. Barber & Co.
" 1	G. Rahn & Co.
Germany, 32 pks.	Steinhoff, Sons, & Co.
" 5 cks.	Henderson, Craig, & Co.
" 3 cs.	H. Brooks & Co.
Varnish Holland, 3 pks	J. Barber & Co.
" 6	Smith, Powers, & Co.
U. States, 12	Taylor Bros.
White Lead Holland, 85 cks.	D. Storer & Sons
Germany, 19	N. J. Fenner & Co.
Holland, 20	Randall Bros.
Germany, 22	A. Zumbach & Co.
Belgium, 45	J. L. Lyon & Co.
France, 17	J. Watt & Son
Holland, 40	W. Balchin
Wood Pulp Norway, 300 pks.	W. E. Bott & Co.
" 50	Stobbs Wilson, & Co.
Sweden, 640	Henderson, Craig, & Co.
" 136	C. S. Lovell
Norway, 795	W. Friedlaender
Holland, 519	Phillips & Graves
Belgium, 1,730	E. J. & W. Goldsmith
Sweden, 3,812	"
Holland, 183	G. Rahn & Co.
" 53	Thames S. T. & L. Co., Ltd.
Germany, 46	L. & I. D. Jt. Co.

Zinc Oxide Holland, 500 cks.	Saundry & Sons
" 50	Burrell & Co.
" 100	I. Matton
U. States, 12 bls.	G. Rahn & Co.
Holland, 25	M. Ashby, Ltd.

LIVERPOOL.

Week ending April 8th.

Alumina Hydrate Antwerp, 5 cks.	J. T. Fletcher & Co.
Barytes Rotterdam, 120 bgs.	"
Antwerp, 50 18 cks.	"
Bone Meal Bombay, 3,500 bgs.	"
Karachi, 17,492	"
Borates Galveston, 5,253 sks.	"
Borax Mollendo, 2,520 sks.	"
Caoutchouc Valparaiso, 37 bls.	J. H. Schroder & Co.
Chemicals (otherwise undes.) Hamburg, 10 cs.	"
Cod Oil Hamburg, 2 cks.	"
Colours Rotterdam, 92 cks.	"
Ghent, 7 bls.	"
Dye-stuffs Divi Divi Hamburg, 243 bgs.	"
Rio Hacha, 170 t.	Brownbill & Co.
Indigo Karachi, 5 cs.	"
Myrabolams Bombay, 4,556 bgs.	"
Shumac Palermo, 275 bgs.	"
Valonia Syra, 299 bgs	C. G. Nicolaidis
" 331	qty. G. T. Scrin
Constantinople, 97	"
Farina Hamburg, 100 bgs.	H. Tyrer & Co.
Glucose New York, 100 bls.	T. M. Duche & Sons
Newport News, 550	"
Baltimore, 550	"
Glue Hamburg, 60 bgs.	"
Fiume, 43 pks.	T. M. Duche & Sons
" 115	E. A. H. Nichols
Philadelphia, 10 bls.	Anglo-American Oil Co., Ltd.
" 112 bgs. 8 cks.	"
Rotterdam, 18	"
Manganese Ore Visagapatam, 1,000 t.	Darwen & Mostyn Iron Co.
Poti, 3,600	Wigan Coal & Iron Co.
Manure Philadelphia, 196 bgs.	"
Mineral White Fiume, 250 bgs	"
Ochre Antwerp, 3 cks.	"
Paint Philadelphia, 20 bls.	Anglo-Am. Oil Co., Ltd.
Paraffin Scale New York, 270 bls.	Anglo-Am. Oil Co., Ltd.
" 270	Thompson & Bedford
Phosphate Rock Bona, 1,035 t.	D. Vickers & Sons
Port Royal, 200 t.	"
Phosphates Ghent, 1,450 bgs.	"
Pyrites Huelva, 2,824 t.	Matheson & Co.
Rosin Carthagena, 62 bgs.	"
Port Royal, S.C., 1,000 bls.	"

Saltpetre Hamburg, 6 bls. 4 cks. 30 bgs. 49 kgs.	"
Karachi, 581	"
Soap Philadelphia, 3 cs.	Maw, Son & Thompson
" 1,663 pks.	"
Newport News, 100 bls.	"
Soapstone Genoa, 300 bgs.	W. Harrison & Co.
" 100	Geo. G. Blackwell, Sons & Co.
Starch Newport News, 4,900 bgs.	"
Antwerp, 100 cs.	J. T. Fletcher & Co.
Stearine Boston, 25	"
Antwerp, 75 tcs.	"
" 13 bgs.	J. T. Fletcher & Co.
Superphosphates Antwerp, 250 bgs.	"
Tallow Campana, 311 cks.	"
Philadelphia, 100 tcs.	"
Baltimore, 100	Colby & Co.
" 75	"
Tartaric Acid Rotterdam, 10 cks.	"
Treacle New York, 40 bls. 20 cs.	Maple Syrup Co.
Philadelphia, 200	"
Ultramarine Hamburg, 4 cks.	"
Rotterdam, 8	"
Varnish New York, 7 bls. 20 cs.	W. A. Warren
Waste Salt Hamburg, 200 bgs.	"
" 200 cks.	H. Tyrer & Co.
Wood Pulp Hamburg, 23 bls.	"
Gothenburg, 10 pks.	Schenkenwald & Co.
" 170	"
Rotterdam, 109	"
Boston, 507 bbls.	Spicer Bros.
" 138	"
Zinc Oxide New York, 250 bls.	"
Rotterdam, 20 cks.	J. Matthews & Co.
Antwerp, 40	"

MANCHESTER.

Week ending April 10th.

Acetic Acid Rotterdam, 23 bls.	"
Antwerp, 30 bls.	"
Alizarine Rotterdam, 16 cks. 2 cs. 18 bls.	"
Aniline Colours Rotterdam, 8 cks. 8 cs. 6 bls.	"
" 9 bxs.	"
Anatto Bordeaux, 20 cs.	"
Barytes Antwerp, 210 bgs.	"
Betanaphthol Rotterdam, 1 bl.	"
Chemicals (otherwise undescribed) Hamburg, 7 cks. 1 cs.	"
Rotterdam, 4	"
China Clay Antwerp, 1 cs.	"
Chromium Chloride Rotterdam, 4 bls.	"
Colours Hamburg, 10 cs.	"
Ghent, 4 bls.	"
Antwerp, 8 cks. 6	"
Rotterdam, 7 24	8 pks.
Cream of Tartar Rotterdam, 6 cks.	"
Farina Hamburg, 220 bgs.	"
Antwerp, 600	"
Glucose Philadelphia, 350 bls.	"

Glue—		
Antwerp,	4 cks.	8 bls.
Rotterdam,	7	410 bgs.
Indigo—		
Rotterdam,	1 chst.	
Limestone—		
Antwerp,	6 crts. 6 cs.	
Methyl Alcohol—		
Antwerp,	6 dms.	
Paraffin Scale—		
Philadelphia,	200 cs. 271 brls.	
Potash—		
Rotterdam,	30 cks.	
Potassium Chloride—		
Hamburg,	14 dms.	
Sodium Nitrate—		
Rotterdam,	8 cks.	
Sodium Sulphate—		
Rotterdam,	6 cks.	
Starch—		
Hamburg,	160 cs.	
Rotterdam,	60	
Sulphuric Acid—		
Rotterdam,	10 cks.	
Tartar—		
Bordeaux,	2 cks.	
Tartaric Acid—		
Rotterdam,	12 cks.	
Ultramarine—		
Rotterdam,	7 cs.	
Waste Salt—		
Hamburg,	qty.	
Wood Pulp—		
Christiania,	1,200 bls.	
Drammen,	1,205	
Skien,	390	
Gothenburg,	1,463	
Zinc Oxide—		
Rotterdam,	170 brls.	
Zinc White—		
Rotterdam,	10 cks.	

HULL.

Week ending April 10th.

Acetate of Lime—		
New York,	522 bgs.	Wilson, Sons, & Co., Ld.
Acids—		
Hamburg,	23 cks.	Wilson, Sons, & Co., Ld.
Alum—		
Rotterdam,	3 cks.	Hutchinson & Son
Ammonia—		
New York,	60 cykles.	
Barytes—		
Rotterdam,	40 cks.	Hutchinson & Son
Amsterdam,	72 50 bgs.	"
Antwerp,	103	Bailey & Leatham, Ld.
"	200 bgs.	Wilson, Sons, & Co., Ld.
Bone Meal—		
Bombay,	5,304 bgs.	
Caoutchouc—		
Dunkirk,	15 cs.	Wilson, Sons, & Co., Ld.
Chemicals (otherwise undeciphered)		
Rotterdam,	1 cs.	Hutchinson & Son
New York,	1	Wilson, Sons, & Co., Ld.
Hamburg,	9	154 bgs. "
Colours—		
Bremen,	7 cks.	Veltmann & Co.
Amsterdam,	2	Hutchinson & Son
Riga,	378	Wilson, Sons, & Co., Ld.
Hamburg,	4 cs.	"
Stettin,	10 bls.	"
Antwerp,	61 pks.	"
Ghent,	8 cks.	"
Rotterdam,	11	"
"	170 pks.	W. & C. L. Ringrose
"	3 cs.	"
Copper Sulphate—		
Hamburg,	28 cks.	Wilson, Sons, & Co., Ld.
Cryolite—		
Copenhagen,	2 cks.	Wilson, Sons, & Co., Ld.
Dextrine—		
Stettin,	100 bgs.	Wilson, Sons, & Co., Ld.

Dyestuffs—		
Alizarine		
Rotterdam,	22 cks.	W. & C. L. Ringrose
11 brls.		
Argols		
Bordeaux,	34 cks.	Wilson, Sons, & Co., Ld.
Indigo		
Amsterdam,	5 chts.	W. & C. L. Ringrose
Logwood		
Hamburg,	100 bls.	Wilson, Sons, & Co., Ld.
Madder		
Rotterdam,	3 cks.	Hutchinson & Son
Myrabolams		
Bombay,	2,248 bgs.	
Farina—		
Harlingen,	600 bgs.	Wilson, Sons, & Co., Ld.
Stettin,	50	Hutchinson & Son
Harlingen,	250	"
Glucose—		
New York,	250 bgs.	925 brls.
Rotterdam,	50	Hutchinson & Son
Glue—		
Rouen,	15 cks. 3 cs.	Rawson & Robinson
Antwerp,	10 pks.	Bailey & Leatham, Ld.
Christiania,	20 bgs.	Wilson, Sons, & Co., Ld.
Antwerp,	4 cs.	"
Dunkirk,	41 cks.	"
Kaolin—		
Rotterdam,	227 bgs.	Hutchinson & Son
Amsterdam,	20 cks.	Reckitt & Sons
Lead Acetate—		
Hamburg,	5 cks.	Wilson, Sons, & Co., Ld.
Limestone—		
Antwerp,	6 pks.	Bailey & Leatham, Ld.
Linseed Oil—		
Hamburg,	297 brls.	Wilson, Sons, & Co., Ld.
Lithopone White—		
Amsterdam,	20 cks.	Hutchinson & Son
Ochre—		
Rouen,	30 cks.	G. Buckton & Son
Phosphate—		
Dunkirk,	1,000 bgs.	Wilson, Sons, & Co., Ld.
Ghent,	505	80 t.
Pitch—		
Amsterdam,	24 cks.	W. & C. L. Ringrose
Potash—		
Antwerp,	119 pks.	Wilson, Sons, & Co., Ld.
Dunkirk,	24 dms.	"
Hamburg,	3 cks.	"
Saltpetre—		
Antwerp,	135 bgs.	Wilson, Sons, & Co., Ld.
Sodium—		
Hamburg,	4 cks.	Wilson, Sons, & Co., Ld.
Starch—		
New York,	5 pks.	Wilson, Sons, & Co., Ld.
Ghent,	192 cs.	"
Bremen,	1,281 pks.	Veltmann & Co.
Antwerp,	162 cs.	Wilson, Sons, & Co., Ld.
40		"
Stearine—		
Antwerp,	44 bgs.	Wilson, Sons, & Co., Ld.
Tallow—		
New York,	50 tcs.	Wilson, Sons, & Co., Ld.
"	10 bds.	"
Tar—		
Stockholm,	20 brls.	Wilson, Sons, & Co., Ld.
Tartar—		
Bordeaux,	5 cks.	Rawson & Robinson
"	1	Sissons Brs. & Co.
"	112	Wilson, Sons, & Co., Ld.
Tartaric Acid—		
Rotterdam,	4 cks.	Hutchinson & Son
"	6	W. & C. L. Ringrose

Tin Ashes—		
Copenhagen,	3 pks.	Wilson, Sons, & Co., Ld.
Treacle—		
New York,	2,285 brls.	Wilson, Sons, & Co., Ld.
Turpentine—		
Bordeaux,	6 cks.	Rawson & Robinson
Ultramarine—		
Bremen,	8 cks.	Wilson, Sons, & Co., Ld.
Rotterdam,	2 cs.	W. & C. L. Ringrose
Varnish—		
New York,	46 brls.	Wilson, Sons, & Co., Ld.
11 pks.		"
Waste Salt—		
Hamburg,	500 bgs.	Bailey & Leatham, Ld.
White Lead—		
Amsterdam,	15 cks.	Hutchinson & Son
Rotterdam,	35	"
Antwerp,	24	Bailey & Leatham, Ld.
Amsterdam,	49	W. & C. L. Ringrose
Zinc Oxide—		
Antwerp,	25 cks.	Sissons Brs. & Co.
Rotterdam,	1	Hutchinson & Son
Zinc White—		
Rotterdam,	25 cks.	Hutchinson & Son

GLASGOW.

Week ending April 15th.

Alumina—		
Rotterdam,	100 bgs.	J. Rankine & Son
Ammonium Chloride—		
Rotterdam,	68 cks.	"
Arachide Oil—		
Rotterdam,	4 cks.	"
Barium Sulphate—		
Antwerp,	300 bgs.	"
Barytes—		
Rotterdam,	44 cks.	"
Hamburg,	22	350 bgs. J. Rankine & Son
Rotterdam,	22	"
Bone Meal—		
Rotterdam,	102 bgs.	"
Chemicals (otherwise undeciphered)		
Rotterdam,	1 ck. 2 cs.	"
Hamburg,	2	"
Colours—		
Antwerp,	4 cs.	"
Rotterdam,	13 pks.	J. Rankine & Son
Hamburg,	2	"
Dyestuffs—		
Alizarine		
Rotterdam,	39 cks.	2 bx.
Aniline		
Rotterdam,	13 cks.	6 cs.
Amsterdam,	2	"
Argols		
Bordeaux,	65 cks.	267 bgs.
Madder		
Rotterdam,	2 cks.	"
Valonia		
Smyrna,	502 t.	Martin & Millar
"	75	Wm. Buntin & Co.
Glucose—		
New York,	1,125 brls.	"
Philadelphia,	300	"
Glue—		
Rouen,	30 cks.	12 bls.
New York,	99	"
Boston,	20 kgs.	"
Manganese Ore—		
Bordeaux,	157 t.	"
Ochre—		
Rouen,	109 cks.	"
Baltimore,	200 brls.	"
Paint—		
New York,	16 kgs. 2 hf. brls.	5 bxs.
Amsterdam,	97y.	"
Boston,	3	"
Paraffin Wax—		
Baltimore,	200 brls.	"
Phosphate of Lime and Rock—		
Antwerp,	500 bgs.	"
Potash—		
Rotterdam,	30 cks.	"
"	43	J. Rankine & Son

Potassium Oxalate—		
Rotterdam,	10 cks.	J. Rankine & Son
Pyrites—		
Huelva,	3,544 t.	Tharid Co.
Salt—		
Hamburg,	50 bgs.	"
Soap—		
Philadelphia,	650 bxs.	23 crls.
Hamburg,	1 ck.	"
Sodium Sulphate—		
Antwerp,	23 cks.	"
Starch—		
New York,	250 bls.	"
Philadelphia,	500 bgs.	"
Baltimore,	750	"
Tallow—		
New York,	35 tcs.	"
Tartar—		
Bordeaux,	20 cks.	"
Tartaric Acid—		
Bordeaux,	2 cs.	"
Treacle—		
New York,	400 brls.	"
Philadelphia,	705	"
Varnish—		
New York,	41 brls.	1 bg.
Waste Salt—		
Hamburg,	950 t. 135 cks.	550 bgs.
White Lead—		
Rotterdam,	10 cks.	"
37		J. Rankine & Son
Wood Pulp—		
Hamburg,	500 bls.	"
Christiania,	1,732	58 cs.
Drontheim,	400 bds.	"
Boston,	70	"
Christians'nd,	3,120	"
Zinc Oxide—		
Rotterdam,	1 ck.	"
New York,	100 brls.	"
Rotterdam,	25	J. Rankine & Son
Zinc Sulphate—		
Gothenburg,	20 bgs.	"
Rotterdam,	5 brls.	"
Zinc White—		
Rotterdam,	100 cks.	"

TYNE.

Week ending April 10th.

Alum Earth—		
Hamburg,	47 cks.	Type S. S. Co.
Barytes—		
Rotterdam,	919 bgs.	Type S. S. Co.
Castor Oil—		
Antwerp,	6 bels.	Type S. S. Co.
Cod Oil—		
Drontheim,	10 bels.	"
Bergen,	25	"
Colours—		
Antwerp,	3 cks.	Type S. S. Co.
Cryolite—		
Copenhagen,	2 cks.	"
Glue—		
Hamburg,	20 bgs.	Type S. S. Co.
Antwerp,	1 ck.	"
Limestone—		
Antwerp,	4 crts.	Type S. S. Co.
Paint—		
Christiania,	3 cs.	"
Pitch—		
Rotterdam,	8 cks.	Type S. S. Co.
Plumbago—		
Hamburg,	2 cks.	200 cs. Type S. S. Co.
Potash—		
Antwerp,	2 cks.	Type S. S. Co.
Waste Salt—		
Hamburg,	300 t.	"
Wood Pulp—		
Christiania,	200 bls.	"
Zinc Oxide—		
Antwerp,	5 brls.	Type S. S. Co.
Zinc Sulphate—		
Gothenburg,	65 bgs.	"

GOOLE.

Week ending April 7th.

Alizarine—		
Rotterdam,	64 brls.	3 cs.

19 cks.	Dyestuffs (otherwise undescribed)	Starch	Chemicals (otherwise undescribed)
12 cks.	Rotterdam, 273 cks. 63 cs.	Ghent, 101 cs.	Hamburg, 2 cks. 15 cs.
1 ck.	Boulogne, 27 12 56 pks.	Waste Salt	Antwerp, 8
60 bgs.	Farina	Hamburg, 142 cks. 300 t.	Colours
5 cks.	Hamburg, 350 bgs.		Antwerp, 81 pks.
7 cks.	Harlingen, 50	GRIMSBY.	Rotterdam, 5 cks.
24 cks.	Logwood	Week ending April 10th.	Hamburg, 26 28 cs. 236
	Belize, 852 t.	Barytes	Farina
	Potash	Rotterdam, 134 bgs.	Hamburg, 3 cs.
	Rotterdam, 100 cks.	Gaoutchouc	Indigo
	Calais, 11 dms.	Hamburg, 1 ble. 2 cs.	Rotterdam, 2 cs.
	Saltpetre	Rotterdam, 1	Starch
	Rotterdam, 100 bgs.	Antwerp, 10	Antwerp, 85 cs.
	Hamburg, 2 cks.		Waste Salt
			Hamburg, 500 bgs.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.	Karachi, 2	12	Adelaide, 10	39	Sodium Bicarbonate		
ending April 14th.	Corinto, 5	12	Brisbane, 15	62	Brisbane, 1 t.	48	
	Yokohama, 5 12	220	Disinfectants		Sydney, 6 4 c.	35	
	Bombay, 9 7	95	Auckland, 25 cs.	46	Rockhampton, 1	7	
	B. Ayres, 6 66	294	Madras, 20 dms. 18		Sodium Carbonate		
	Trinidad, 3	11	B. Ayres, 8	2 crates	Trinidad, 1 t.	48	
	Citric Acid		Brisbane, 8	42			
	Brussels, 1 ck. 10 c.	6 kgs. 174	Singapore, 25	12	Sodium Hyposulphite		
	Amsterdam, 1	5	Penang, 2	5 cks. 350	Auckland, 1 t.	111	
	Genoa, 1	5	Natal, 29	72	Adelaide, 3 6 c.	16	
	Newcastle, 3	18	Brussels, 1	50	Sodium Nitrate		
	Rotterdam, 1	8	Hamburg, 50	250	Yokohama, 50 t. 6 c.	417	
	Madras, 1 14	6	Bombay, 67 pks.	2,705 1,229	Sodium Prussiate		
	Hiogo, 1	5	Sydney, 65	162	Hamburg, 1 t.	37	
	Hamburg, 1 brl 2	23	Kurr'chee, 82	20	Sulphur		
	Singapore, 4	24	Guano		Lisbon, 300 brls. 14 c.	216	
	Yokohama, 5	29	Paris, 2 t. 7 c.	660	Sulphur Dioxide		
	Kurrachee, 1 cs.	7	Manure		Nagasaki, 2 cs.	31	
	Sydney, 1 t.	104	Maryboro, 5 t.	207	Superphosphates		
	Coal Products		Madeira, 20	55	Barbadoes, 50 t. 2 c.	138	
	Alizarine		Jamaica, 10	50	Tartaric Acid		
	Boston, 10 cks.	112	Dunkirk, 47	200	Natal, 4 cs. 19		
	Lisbon, 2	34	Rosario, 6 17 c.	70	Hiogo, 1 t. 5 c.	135	
	Aniline		Mercuric Chloride		Canterbury, 10	57	
	Auckland, 2 cs.	81	Bombay, 2 cks.	121	Yokohama, 1 16	195	
	Sydney, 1	9	Myrbane		Bombay, 6 pks.	36	
	Aniline Salts		Sydney, 19 cs.	491	Kurrachee, 1	6	
	New York, 74 cks.	690	Brussels, 21 dms.	37			
	Anthracene		New York, 82	268			
	Dusseldorf, 195 cks.	1,756	Oxalic Acid				
	Benzine		Sydney, 10 cks.	634			
	Melbourne, 6 crates	69	Phosphate				
	Brisbane, 37 dms.	25	Rouen, 10 t.	665			
	Benzol		Phosphoric Acid				
	Rotterdam, 12 dms. 74 cks.	6819	Yokohama, 5 cks.	632			
	Sydney, 10	11	Townsville, 10 t.	149			
	Melbourne, 25	7	Phosphorus				
	Creosote		Melbourne, 5 cs.	643			
	Rotterdam, 50 cks.	635	Potash Salts				
	Creosote Salts		Pt. Darwin, 3 t. 15 c.	266			
	Philadelphia, 670 bgs.	1,611	Potassium Bicarbonate				
	Naphtha		Philadelphia, 1 t. 3 c.	631			
	Sydney, 50 dms.	674	Potassium Bichromate				
	Adelaide, 10	5	Bremen, 1 ck.	616			
	Melbourne, 70	33	Potassium Chlorate				
	Philadelphia, 20	200	Ghent, 1 t. 2 c.	642			
	Naphthalene		Potassium Chloride				
	Constantinople, 11 cks. 45 bgs.	665	Colombo, 16 t.	6140			
	Bordeaux, 10 50	48	Potassium Cyanide				
	Naphthalene Salts		Rio de Janeiro, 1 t.	6150			
	Stockholm, 50 bgs.	636	Potassium Oxalate				
	Pitch		Antwerp, 2 cks.	65			
	Alexandria, 200 brls.	672	Potassium Permanganate				
	Antwerp, 969 t.	1,225	Bombay, 5 c.	618			
	Dunkirk, 1,085	1,252	Potassium Prussiate				
	New York, 200	60	Hiogo, 1 t. 5 c.	658			
	Tamatave, 45 dms.	9	Antwerp, 1 ck.	16			
	Brisbane, 6 pks.	4	Stockholm, 2	25			
	Prussian Blue		Salicylic Acid				
	Amsterdam, 3 cks.	613	Auckland, 2 cs.	646			
	Tar		Saltpetre				
	Teneriffe, 6 brls.	65	Rio de Janeiro, 1 t. 7 c.	629			
	Danzig, 240	125	Gothenburg, 1	21			
	Bombay, 15 mlt.	16	Sydney, 15	299			
	Cochin, 10	20	Rockhampton, 5	5			
	Brisbane, 50 dms.	9	Rotterdam, 2 2	44			
	Tar Oil		Sheep Dip				
	Hamburg, 25 cks.	618	Punta Arenas, 100 cs.	6200			
	Tar Salts		Colombo, 150 dms.	50			
	Brussels, 2 cks.	629	B. Ayres, 5 t.	225			
	Coal Products		Soda Crystals				
	Boulogne, 24 cks.	6106	Newcastle, 50 t.	6116			
	Copper Sulphate		Chelos, 1 13 c.	5			
	Marseilles, 5 t. 2 cs.	679	Rockhampton, 5 7	12			
	Barbadoes, 1	19					
	Odessa, 10 18	190					
	Seville, 1	19					
	Copperas						
	Madras, 18 cks.	612					
	Cream of Tartar						
	Hiogo, 10 c.	644					

Bleaching Powder—

Baltimore,	56 cks.	
Bombay,	300 cs.	
Boston,	732	5 brls.
B. Ayres,		
Genoa,	148	
Lisbon,	20	
Naples,	29	
New York,	451	
San Francisco,	230	
Seville,	4	
Vigo,	11	

Boracic Acid—

M. Video,	1 t.	1 c.	1 q.	£33
-----------	------	------	------	-----

Borax—

Portland, M.,	2 t.	18 c.	£59
Copenhagen,	1	9	26
Hamburg,	2	1	41
Antwerp,	4	15	3 q. 96

Carbolic Acid—

New York,	9 L.	10 c.	£700
Newport News, 20	8	3 q.	1,500
Rotterdam,	7		23
Leghorn,	10		43

Caustic Potash—

San Francisco,	2 t.	£56
----------------	------	-----

Caustic Soda—

Adelaide,	2 bxs.	4 pks.
Alexandria,	40 tms.	
Algoa Bay,	40 cs.	
Amsterdam,	25	
Antwerp,	30	
Barcelona,	630	95 cks.
Bombay,	92	
Boston,	330	
B. Ayres,	34 tcs.	
Cape Town,	20 cs.	
Corunna,	20 brls.	
Delagoa Bay,	40	
Fairwater,	35	
Galatz,	5	
Genoa,	115	
Halifax,	10	
Hamburg,	3	
Havana,	40	
La Guayra,	40	
Lisbon,	96	
Malta,	17	
Marseilles,	8	
Mauritius,	20	
Melbourne,	50 cs.	
M. Video,	50	
N. Orleans,	50	
New York,	823	10 brls.
Oporto,	18	
Para,	30	
Pernambuco,	25	
Philadelphia,	675	
Pt. Elizabeth,	5	
Portland, Or.,	38	
Rio de Janeiro,	20	
St. John N.B.,	50	
San Francisco,	90	15
Santos,	60	
Savannah,	10	
Seville,	100	
Sydney,	30	
Tampico,	134	51 cks.
Valparaiso,	50	
Venice,	130	

Chemicals (otherwise unites.)—

Boston,	10 t.	4 c.	2 q.	£573
Hamburg,	5			8
Gothenburg,	8			11
Venice,	18			33
Konigsberg,	11			13
Stettin,	2	16		69
Philadelphia,	13	5		405
Rotterdam,	3	6		9
Yokohama,	4	14	3	111
Odessa,	6	10		176
New York,	10	12	1	195
Kurrachee,	15			24

China Clay—

Barcelona,	80 bgs.	
Boston,	60 cks.	
Calcutta,	120	
Lisbon,	20	

Chromium Trioxide—

Hamburg,	10 c.	£30
----------	-------	-----

Coal Products—**Alizarine**

Lisbon,	2 cks.	
---------	--------	--

Aniline Salts

Bombay,	5 cs.	
---------	-------	--

Croton Oil

Lisbon,	350 brls.	
---------	-----------	--

Pitch

Cette,	589 t.	
--------	--------	--

Galatz

Galatz,	50 brls.	
---------	----------	--

Tar

Galatz,	50 brls.	
---------	----------	--

Hong Kong

Lagos,	10 dms.	
--------	---------	--

Lagos

	10 cks.	
--	---------	--

St. John's, Nfld.,	30	55 tcs.
Sierra Leone,	20	
Valparaiso,	85 kgs.	

Copper Sulphate—

La Pallice,	9 t.	16 c.		£151
Tarragona,	24	16	3 q.	437
Passages,	4	19		91
New Fairwater,	10	3		159
Oporto,	2	13	3	45
Calcutta,	5			80
Odessa,	4	19		78
Galatz,	1	15		28
B. Ayres,	1	19		31
Trieste,	5	1		81
Brisbane,	1			16
Brindisi,	23		2	303
Venice,	166	5	3	2,697
Cette,	89	14		1,580
Bordeaux,	284	5	1	3,845
Barcelona,	8	1		147
Antwerp,	20			370
Bari,	2	10	1	59
Naples,	67	11		1,076
Lisbon,	77	6	3	1,350
Genoa,	187	13	2	3,021
Marseilles,	5	2	1	85
Leghorn,	124	12		2,023
Nantes,	39	9	2	667
Fiume,	39	18		671

Copperas—

Sydney,	23 t.	7 c.	2 q.	£53
Melbourne,	3	13	1	8
San Francisco,	6	8		15
Galatz,	5			12

Disinfectants—

Bombay,	4 t.	12 c.		65
Sydney,	11	3	1	7
New York,	5	14	1	7

Dried Blood -

Dried Blood—

Teneriffe,	30 t.	4 c.	1 q.	£173
Boston,	4	19		350
Rouen,	35	7	3	212

Guano—

Valencia,	31 t.	10 c.	£235
-----------	-------	-------	------

Iron Oxide—

New York,	25	1	8
Lisbon,	1	3	2 q. 1
Lead Nitrate—			
Lisbon.		10 c.	£1

Lead Nitrate—

Lisbon,	10 c.	£11
---------	-------	-----

Magnesia—

Barcelona,	5 cs.	
------------	-------	--

Manure—

Gd. Canary,	5 t.	£26
Las Palmas,	3	95

Muriatic Acid—

Pernambuco,	1 t.	2 c.	£14
-------------	------	------	-----

Oxalic Acid—

San Francisco,	3	6	91
Paint—			
Alexandria,		125 kgs. 25 dms.	
Beyrout,		38	

Paint—

M. Video,		24	
New York,		150	
Para,		31	68 brls.
Ponce,		54	
Rio de Janeiro,			11
Rosario,			28 pks.
St. John's, Nfld.,	17 cks.	100	
Santos,	2 cs.	1	10
Suez,		26	4
Trieste,		4	
Varna,		2	

Painters' Colours—

Alexandria,	1 ck.	60 kgs.	15 dms.
Galatz,			3 brls.
Havana,	5		
Ibrail,			2
Lisbon,	2		
Portland, M.,	10		

Paraffin Wax—

Constantinople,	19 bgs.	
Odessa,	30 kgs.	
Tampico,	5 bls.	

Phosphorus—

Hiogo,	4 c.	£65	
B. Ayres,	13		110

Potash Salts—

B. Ayres,	13	110
Potash Salts—		
Singapore,	1 t.	2 q. £79
Corinto,	4	1 c. 2 361

Potassium Bichromate—

Smyrna,	5 t.	4 c.	£206
---------	------	------	------

Potassium Chlorate—

Rio de Janeiro,	3 t.	£102
Gotheaburg,	5	171
Boston,	2 10 c.	78
Hiogo,	22 10	733
Philadelphia,	29 19	968

New York,	136	5	4,502
-----------	-----	---	-------

Potassium Cyanide—

Panama,	1 t.	8 c.	1 q.	£74
---------	------	------	------	-----

Potassium Silicate—

Amsterdam,	1 t.	4 c.	3 q.	£10
------------	------	------	------	-----

Salt—

Algoa Bay,	5 t.	
Baltimore,	275	
Boston,	200	
Brass,	10	
B. Ayres,	18	4 c.
E. London,	17	16
Melbourne,	50	
N. Orleans,	200	
New York,	315	
Opobo,	8	
Portland, Or.,	745	
Portland, Me.,	250	
Pt. Natal,	100	
Sierra Leone,	201	
Sydney,	150	
Winnedah,	4	19

Salt Cake—

Antwerp,	61 L.	3 C.	£71
Genoa,	25	2	46
Naples,	37	10	56

Saltpetre—

Tampico,	5 t.	4 c.	£112
----------	------	------	------

Soap—

Addah,	50	bws.	
Alexandria,	10		
Algoa Bay,	575		1 bdle. 60 cs.
Ambonia,	1,000		
Amsterdam,	125		
Appam,	20		
Assinee,	38		
Axim,	400		
Barbadoes,	800		
Batavia,	3,000		
Belize,	1,535		
Bombay,	152		105
Bonny,	50		
Brass,	50		
Calcutta,		250	
Cameroons,	30		
C. C. Castle,	150		
Cape Town,	4,596		35
Colon,	175		
Conakry,	100		
Copenhagen,	20		
Dakar,	20		
Delagoa Bay,	1,000	35	100
Demerara,	1,510		
E. London,	3,387		5
Ferrol,	11		
Genoa,	200		
Gibraltar,	20		
Hamburg,		500	
Hiogo,	5		
Kurrachee,	25		
Lago,	187		
Lisbon,			6
Macassar,	600		
Madras,	40		
Malta,			20
Manaos,	620		
Mauritius,	1,000		
Melbourne,		120	crts.
Monrovia,	95		
Mussers,	60		
Old Calabar,	1,850		
Opobo,	2,170		
Para,	500		1
Penang,	269		
Philadelphia,			999
Pt. Beira,	50		
Pt. Elizabeth,	886		
Portland, Me.,			1
Pt. Natal,	551	25	bdls.
Rotterdam,	10		
Salt Pond,	325		
San Juan,	100		
Sapei,	200		
Shanghai,	6,355		
Singap re,	360		
Va paraiso,		70	dms.
Winnelah,	30		

Soda Alkali—

Freemantle,	7 cks.	
Galatz,	7	
Genoa,	220 bgs.	
Hamburg,	16	
Lisbon,	70 brls.	
Madeira,	20	
Malta,	65	
Marseilles,	17	
Melbourne,	62 pks.	
Portland, Me.,	35	
Vigo,	20	

Soda Ash—

Adelaide,		100 cks.
Antwerp,	2,550 bgs.	8
Baltimore,	1,432	
Boston,	2,430	34 tcs. 82

B. Ayres,	50 brls.	27
-----------	----------	----

Copenhagen,	1,750	
Genoa,	100	
Hamburg,	300	
Ibrail,	100	
Leghorn,	100	
Naples,		
New York,	1,352	151 tcs.
Norfolk,		
Oporto,		
Philadelphia,	452	161
Rosario,		
Rotterdam,	250	50 brls.
San Francisco,		
Santos,	10	
Stettin,	100	
Vera Cruz,		
Yokohama,		

Soda Crystals—

Antofagasta,	50 brls.	
Boston,		
B. Ayres,	50 kgs.	
Galatz,		
Gibraltar,		
Lisbon,		
New York,		
Philadelphia,		

MANCHESTER.

Week ending April 10th.

Ammonium Carbonate—	20 kgs.
Colours—	21 kgs. 1 cs.
Oil—	1 tin 6 dms.
Acid—	6 cks.
Soda—	95 dms.
	88 t. 8 c.
	1,669 5
	110 cks.

HULL.

Week ending April 10th.

Ammonium Sulphate—	85 dms.
	26
	890 bgs.
	104
	500

GLASGOW.**GLASGOW.**

Week ending April 15th.

Alum—	3,000 c.
Ammonium Sulphate—	19 cks.
Als (otherwise undescribed)	20
Ammonium Sulphate—	11 cks.
Ammonium Sulphate—	191
Ammonium Sulphate—	10 pks.
Ammonium Sulphate—	43 6 cs.
Ammonium Sulphate—	30
Ammonium Sulphate—	1 14 10
Ammonium Sulphate—	15 151
Ammonium Sulphate—	32 60
Ammonium Sulphate—	35 31
Ammonium Sulphate—	135 bgs.
Ammonium Sulphate—	12 4
Ammonium Sulphate—	958 c.
Ammonium Sulphate—	714
Ammonium Sulphate—	99
Ammonium Sulphate—	33
Ammonium Sulphate—	160
Ammonium Sulphate—	476
Ammonium Sulphate—	259
Ammonium Sulphate—	579
Ammonium Sulphate—	566
Ammonium Sulphate—	153
Ammonium Sulphate—	993
Ammonium Sulphate—	34
Ammonium Sulphate—	10 brls.

GLASGOW.

Week ending April 10th.

Ammonium Sulphate—	10 cks.
Ammonium Sulphate—	20 bls.
Ammonium Sulphate—	5 bgs.
Ammonium Sulphate—	500 sks.
Ammonium Sulphate—	100 c.
Ammonium Sulphate—	48
Ammonium Sulphate—	36
Ammonium Sulphate—	182
Ammonium Sulphate—	2,175
Ammonium Sulphate—	52
Ammonium Sulphate—	2
Ammonium Sulphate—	656
Ammonium Sulphate—	159
Ammonium Sulphate—	1,982 bgs.
Ammonium Sulphate—	9 cks.
Ammonium Sulphate—	34 cks.
Ammonium Sulphate—	100
Ammonium Sulphate—	1 cs.
Ammonium Sulphate—	5
Ammonium Sulphate—	2
Ammonium Sulphate—	3
Ammonium Sulphate—	10 3 4
Ammonium Sulphate—	7
Ammonium Sulphate—	14 1
Ammonium Sulphate—	61
Ammonium Sulphate—	19 pks.
Ammonium Sulphate—	47
Ammonium Sulphate—	25
Ammonium Sulphate—	100
Ammonium Sulphate—	1 t

Rouen,	10
Stettin,	17
Pitch—	
Antwerp,	610 t.
Soap—	
Bergen,	3 cs.
Christiania,	1
Copenhagen,	1
Drontheim,	50
Gothenburg,	2
Starch—	
Bergen,	32 bgs. 1 cs.
Tallow—	
Amsterdam,	31 cks.
Gothenburg,	19
Tar—	
Amsterdam,	11 cks.
Danzig,	9
Gothenburg,	3
Hamburg,	45
Rotterdam,	2
Stettin,	15
Turpentine—	
Bergen,	2 cks.
Varnish—	
Antwerp,	5 cks. 5 cs.
Bordeaux,	3
Ghent,	4 1
Gothenburg,	3 3 dms.
Hamburg,	3
Rotterdam,	5

GLASGOW.

Week ending April 15th.

Alum—	Melbourne, 6 t. 11½ c.
Alum na Sulphate—	Dunedin, £19
Ammonium Carbonate—	Stockholm, £16
Ammonium Chloride—	Italy, £107
Ammonium Sulphate—	Antwerp, 50 t.
Ammonium Sulphate—	Bruges, 50 9½ c.
Ammonium Sulphate—	Demerara, 15 5½
Ammonium Sulphate—	Amsterdam, 76 13
Bleaching Powder—	Dunedin, 8 t. 8½ c.
Bleaching Powder—	Melbourne, 7 3¼
Bone Meal—	Brit. C. Africa, 10 t.
Caustic Soda—	Dunedin, 10 t. 10½ c.
Coal Products—	
Creosote—	Rotterdam, £35
Creosote Oil—	Antwerp, £37
Creosote Oil—	U.S.A., 50
Pitch—	France, £1,430
Pitch—	Havre, 552
Pitch—	Venice, 2,306
Pitch—	Antwerp, 1,210 t.
Pitch—	Danzig, 152 10 c.
Pitch—	Tar, 273 t. 13 c.
Pitch—	Danzig, 273 t. 13 c.
Pitch—	Calcutta, £150
Pitch—	U.S.A., 149
Tar Acids—	U.S.A., £85
Tar Oil—	Hamburg, 1 t. 2 c.
Coal Products (otherwise undes.)—	Rotterdam, £778
Extracts—	U.S.A., £224
Extracts—	Victoria, Aus., 230
Extracts—	Bergen, 5½ c.
Fustic—	Victoria, Aus., £20
Gelatine—	Canada, £73
Gelatine—	Dunedin, 30
Gelatine—	New York, 2,606
Glucose—	Ootacamund, 8 t. 5¾ c.
Lime—	Trinidad, 25 t. 9½ c.
Li-seed Oil—	Dunedin, 3 t. 8¾ c.
Li-seed Oil—	Wellington, 2 8
Li-seed Oil—	St. John's, Nfld., 3 ¾
Li-seed Oil—	Trinidad, 6 4¾
Logwood—	N. Zealand, £106
Logwood—	Pt. Lyttelton, qty.

Manganese—

Basle,	£105
Paint—	
Wellington,	£27
St. John's, Nfld.,	86
Melbourne,	£21. 13s.
Painters' Colours—	
Dunedin,	qty.
Demerara,	"
Bombay,	"
Cape Town,	"
Auckland,	"
Paraffin Wax—	
Arendal,	£30
Stockholm,	366
Antwerp,	75
Fiume,	180
Italy,	qty.
Vienna,	180
Phosphoric Acid—	
Trinidad,	£24
Potassium Bichromate—	
N. Zealand,	£39. 13s.
Stockholm,	£212
Antwerp,	212
Ghent,	405
Montreal,	82
Italy,	384
U.S.A.,	857
Victoria, Aus.,	£59. 10s.
Salt Cake—	
Terneuzen,	307 t. 16½ c.
Soap—	
Canterbury,	18 c.
Pt. Lyttelton,	1 t. 1¾
St. John's, Nfld.,	2 19
Sodium Bichromate—	
N. Zealand,	14½ c.
Ghent,	1 t. 1½
Montreal,	2 18½
Italy,	19 17½
U.S.A.,	20 14½
Sulphur—	
N. Zealand,	3 t.
Trinidad,	3 3 c.
Sulphuric Acid—	
Madras,	£127
Bombay,	7,500
Tallow—	
Rotterdam,	7 t. 2 c.
Tartar—	
Dunedin,	£46
Treacle—	
Christiania,	8 t. 14 c.
Stockholm,	2 14
Algoa Bay,	3
Cape Colony,	2 10
Be. gen,	15 12

TYNE.

Week ending April 10th.

Alkali—	
Christiania,	11 t. 11 c.
Hamburg,	2 5
Amsterdam,	39 7
Potterdam,	3 3
Riga,	38
Alum Waste—	
Odense,	10 t. 8 c.
Antimony—	
Hamburg,	15 t.
Rotterdam,	12
Barium—	
Hamburg,	5 t. 3 c.
Barium Binoxide—	
Rouen,	11 t. 17 c.
Barium Carbonate—	
Hamburg,	11 t.
Bleaching Powder—	
Hamburg,	44 t. 13 c.
Antwerp,	87 1
Amsterdam,	22 7
Copenhagen,	9 2
Rotterdam,	19 18
Riga,	73 5
Danzig,	16 5
Christiania,	34 9
Bergen,	17 4
Carbolic Acid—	
Novoroisk,	7 c.
Caustic Soda—	
Hamburg,	8 t. 14 c.
Antwerp,	15 11
Cope. hagen,	2 18
Aalborg,	4 7
Rotterdam,	1 15
Danzig,	10 10
Christiania,	10 17

Coal Products (otherwise undes.)—

Rouen,	20 t.
Farina—	
Bergen,	4 t.
Guano—	
Copenhagen,	100 t.
Iron Sulphate—	
Christiania,	5 t. 2 c.
Litharge—	
Hamburg,	1 t. 13 c.
Magnesia—	
Hamburg,	1 t. 16 c.
Antwerp,	1
Naphthaline—	
Riga,	25 t. 6 c.
Paint—	
Christiania,	10 c.
Antwerp,	13
Copenhagen,	2 3
Rotterdam,	1
Pitch—	
Novoroisk,	2 t. 4 c.
Rosin Oil—	
Hamburg,	3 t. 9 c.
Saltpetre—	
Aalborg,	5 t. 10 c.
Soda—	
Hamburg,	4 t. 10 c.
Amsterdam,	30 7
Rotterdam,	92 17
Christiania,	15 3
Bergen,	5 3
Randers,	10
Soda Ash—	
Christiania,	17 t.
Riga,	10
Bergen,	6 1 c.
Sodium Sulphate—	
Aalborg,	2 t. 10 c.
Sulphur—	
Hamburg,	200 t. 2 c.
Riga,	130
Superphosphates—	
Helsingborg,	1,083 t.
Tallow—	
Genoa,	21 t. 16 c.
Tar—	
Novoroisk,	1 t. 3 c.
Varnish—	
Novoroisk,	7 t. 9 c.
White Lead—	
Novoroisk,	4 t. 18 c.

GOOLE.

Week ending April 7th.

Chemicals (otherwise undescribed)	
Amsterdam,	73 cks.
Antwerp,	1
Ghent,	5 cs.
Harlingen,	1
Coal Products (otherwise undes.)—	
Boulogne,	50 cks. 4 cs.
Rotterdam,	315 21 dms.
Colours—	
Ghent,	2 tins
Rotterdam,	3 cs.
Dyestuffs (otherwise undescribed)	
Ghent,	2 cks.
Hamburg,	6
Manure—	
Dunkirk,	439 bgs.
Ghent,	741
Ostend,	185
St. Brieux,	150 t.
Pitch—	
Antwerp,	838 t.
Dunkirk,	470

GRIMSBY.

Week ending April 10th.

Alkali—	
Hamburg,	26 cs.
Chemicals (otherwise undescribed)	
Dieppe,	3 cks.
Coal Products (otherwise undes.)—	
Dieppe,	81 cks.
Colours—	
Hamburg,	28 pks.
Malmo,	14 cks.
Rotterdam,	1 cs.
Pitch—	
Antwerp,	54 t.

PRICES CURRENT.

WEDNESDAY, APRIL 21ST, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	& 8/9
Glacial	"	40/-	
Arsenic S.G., 3000	"	1	4 0
Fluoric	per lb.	0 0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0	10
(Cylinder), 30° Tw.	"	0 3	0
Nitric 80° Tw.	per lb.	0 0	1½
Nitrous	"	0 0	1½
Oxalic	nett	0 0	3½
Phosphoric, 1750°	"	0 0	11½
Picric	"	0 0	11
Sulphuric (fuming 50 %)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
(free from arsenic, 145°)	"	1	5 0
Sulphurous (solution) S.G. 1025	"	1	7 6
Tannic (pure)	per lb.	0 1	2½
Tartaric	"	0	1 0
Arsenic, white powdered	nett per ton	23	10 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	2 6
Aluminaferric	"	2	3 6
Aluminium (Ingot metal 98/99¾ %	nett per cwt.	7	17 6
Ammonia, Anhydrous	per lb.	0 1	3
" 880=28° B.	"	0 0	2½
" =24° B.	"	0 0	1½
" Carbonate	nett	0	0 3
" Muriate	per ton	18	7 6
" (sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
" Nitrate	per ton	33	0 0
" Phosphate	per lb.	0 0	4½
" Sulphate (grey) London	per ton	7	8 9
" (grey) Hull	"	7	10 0
Aniline Oil (pure)	per lb.	0 0	8
Aniline Salt	"	0	0 7½
Antimony	per ton	31	0 0
(tartar emetic)	per lb.	0 0	9
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	12 6
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	42/6	to 65/-
Bleaching Powder, 35 %	nett	6	7 6
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	12	0 0
Chromium Acetate (crystal)	per lb.	0 0	6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	"	15/-	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	nett per lb.	0 0	6¾
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 0	8
Benzol, 90's	per gallon	0 2	3
50/90	"	0 2	4½
Carbolic Acid (crude 60°)	per gallon	0 2	6
(crystallised 40°)	per lb.	0 0	8
(liquid 95/97 %)	per gallon	0 1	1
Creosote (ordinary)	"	0 0	2
(filtered for Lucigen light)	"	0 0	2½
Crude Naphtha 30 % @ 120° C.	"	0 1	1
Grease Oils, 22° Tw.	per ton	2	15 0
Fitch, f.o.b. Liverpool or Garston	"	1	3 0
Solvent Naphtha, 90 % at 160°	per gallon	0 1	8
Copper	per ton	48	15 0
" Sulphate	"	17	10 0
" Oxide (copper scales)	"	44	10 0
Glycerine (crude)	"	36	0 0
(distilled S.G. 1250°)	"	68	10 0
Iodine	nett, per oz.	0 0	9
Iron Sulphate (copperas)	per ton	1	10 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	13	2 6
" Litharge Flake (ex ship)	"	14	15 0
" Acetate (white)	"	23	0 0
" brown	"	15	10 0
" Carbonate (white lead) pure	"	16	15 0
" Nitrate	"	1	0 0

Lime, Acetate (brown) (ex ship)	per ton	5	0 0
(grey) (ex ship)	"	8	7 6
Magnesium (ribbon and wire)	per oz.	0	2 1
" Chloride (ex ship)	per ton	2	7 8
" Carbonate	per cwt.	1	17 6
" Calcined Magnesia	per ton	9	0 0
" Sulphate (Epsom Salts)	per ton	2	15 4
Manganese, Sulphate	"	16	0 0
" Borate	per cwt.	2	10 0
" Ore, 70 %	per ton	3	10 0
Methylated Spirit, 61° O.P.	per gallon	0	1 8
Naphtha (Wood), Solvent	"	0	2 7
" Miscible, 60° O.P.	"	0	2 8

Oils:—

Cotton-seed	per ton	15	10 0
Linseed	"	15	10 0
Petroleum, American	per gallon	0	0 6½
Stearine	per ton	19	10 0
Phosphorus (yellow)	per lb.	0	2 2
(red)	"	0	2 8
Potassium (metal)	per oz.	0	3 1
" Bichromate	nett per lb.	0	0 4½
" Carbonate, 90% (ex ship)	per ton	17	10 0
" Chlorate	per lb.	0	0 4
" Cyanide, 98%	"	0	0 11
" Hydrate (Caustic Potash) 90 %	per ton	24	0 0
" (Caustic Potash) 75/80 %	"	20	15 0
" (Caustic Potash) 70/75 %	"	19	15 0
" Nitrate (refined)	per cwt.	1	1 6
" Permanganate	per cwt.	3	17 6
" Prussiate Yellow	per lb.	0	0 5
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	10 0
Silver (metal)	per oz.	0	2 4½
Sodium (metal)	per lb.	0	2 11
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15 0
" (Caustic Soda-ash) 48 %	"	4	5 0
" (Carb. Soda-ash) 48 %	"	4	0 0
" (Alkali) 58 %	"	3	17 0
" (Soda Crystals)	"	2	5 0
" Acetate (ex-ship)	"	13	10 0
" Arseniate, 45 %	"	15	0 0
" Chlorate	per lb.	0	0 4½
" Borate (Borax)	nett, per ton	16	15 0
" Bichromate	per lb.	0	0 3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	9	5 0
" (74 % Caustic Soda)	"	8	2 6
" (70 % Caustic Soda)	"	7	2 6
" (60 % Caustic Soda)	"	6	2 6
" (pure liquor 90° Tw.)	"	3	15 0
" 77/78 % powdered (99 % hydrate)	"	13	10 0
" Bicarbonate	"	6	10 0
" Hyposulphite	"	5	5 0
" Manganate, 25%	"	15	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8 0
" Nitrite, 98 %	per ton	30	0 0
" Phosphate	"	12	0 0
" Silicate (glass)	per ton	4	10 0
" (liquid, 100° Tw.)	"	3	10 0
" Stannate, 40 %	per cwt.	3	2 9
" Sulphate (Salt-cake)	per ton	0	19 0
" (Glauber's Salts)	"	1	7 6
" Sulphide	"	6	15 0
" Sulphite	"	5	0 0
Strontium Hydrate, 100%	"	8	0 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 6½
" Barium, 95 %	"	0	0 4½
" Potassium	"	0	0 6½
Sulphur (Flowers)	per ton	7	10 0
(Roll Brimstone)	"	6	10 0
" Brimstone: Best Quality	"	4	15 0
Superphosphate of Lime (26 %	"	2	15 0
Tallow	"	18	0 0
Tin Crystals	per lb.	0	0 4½
" English Ingots	per ton	64	10 0
Zinc Spelter	"	17	5 0
" Chloride (solution, 100° Tw.)	"	5	10 0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

519.

SATURDAY, MAY 1, 1897.

Vol. XX.

Contents.

	PAGE		PAGE
Inspection and Registration	297	Exhausting Lamps by the "Chemical" Method	303
Ad Packer	298	Trade Notes	304
List	298	Tar and Ammonia Products	304
Latest Complete Specimen	299	Miscellaneous Chemical Market	304
Le Smelting Company	299	Report on Manure Material	304
Memoranda	300	The Metal Markets	304
Insurance	300	Liverpool Oil and Colour Market	305
Companies	301	West of Scotland Chemicals	305
Fire at Glasgow	301	Hull Paint, Oil, and Colour Report	305
Mineral and Metallurgical	301	Type Chemical Report	305
Petroleum from U.S.A.	303	New Companies	305
		Imports	306
		Exports	306
		Prices Current	312

NTIAL OILS.—AGENTS Wanted in all principal Towns of the United Kingdom by first-class Distillers. Those with connections amongst Soap Makers, Confectioners, Wholesale Druggists, etc., to "K 29," *Chemical Trade Journal* Office, Manchester.

Notices.

Communications for the *Chemical Trade Journal* should be sent to the Editor, and Cheques and Post Office Orders made payable to—

18 BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, of the *Trade Journal*,—payable in advance,—including postage of the world, are as follows:—

Half-yearly (52 numbers)	12s. 6d.
Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Subscribers are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Contributors will oblige by making their remittances for subscriptions by Post Office Order, crossed and payable to "Davis Bros."

Communications for the Editor, if intended for insertion in the next issue, should reach the office not later than Tuesday.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale, To be Let, and Wants, and Specific Articles for Sale by Private Contract are accepted in the *Chemical Trade Journal* at the following rates:—

30 Words and under	2s. 6d. per insertion
Each additional 10 words	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

30 Words and under	1s. 6d. per insertion
Each additional 10 words	0s. 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements prepaid, are charged at the Tariff rates, which will be forwarded on request.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

CURRENT TOPICS.

GAS AND WATER GAS.

THE controversy on this subject has been a long and wordy one, and even now there is a doubt as to whether anything like a fully satisfactory solution of the questions raised has been effected.

There is no doubt that water gas, if supplied as an illuminant, is *per se* more dangerous than ordinary coal gas, and considering that, even as things are, there are quite enough fatalities due to gas escapes, it is hard to see how the substitution of carburetted water gas can be recommended.

In regard to the actual procedure now in vogue, however, the position is not quite so simple, as it is not a case of absolute substitution that has to be considered, but one of admixture.

Virtually, the whole matter hinges upon the percentage of carbon monoxide that can safely be present in a gaseous mixture intended for illuminating and cooking purposes.

No one has so far had the temerity to attempt to belittle the dangerous properties of the monoxide, but there appears to be a wide diversity of opinion as to the risk run by using a gas which contains twice as much monoxide as ordinary coal and cannel gas. It would seem that this is a question that can only be settled by actual experience. At Birmingham there has been a great outcry and a heated correspondence was carried on in the local daily papers. Most of the correspondents, however, did not base their arguments on the composition of the gaseous mixture supplied by the Corporation, so that their remarks were often beside the question. Naturally nothing very tangible resulted.

What we should like to see would be the provision of means whereby a record could be kept of all mishaps due to the escape of Birmingham gas, and, if possible, prompt steps taken to ascertain by medical examination the percentage of monoxide in the blood of the sufferers.

On the ground that prevention is better than cure it seems wise for the Local Government Board to withhold its sanction to carburetted water gas schemes until the results at those towns where the mixing system is in force have provided further evidence as to the wisdom or unwisdom of supplying the extra percentage of monoxide.

Even then, the question of the proportion of coal gas to water gas remains open. Professor Lewes has given it as his opinion that with the Birkenhead gas a half and half mixture is safe for general use, but however sound this conclusion may be on theoretical grounds, its truth can only be tested by carefully watching for some time the progress of events in that town.

In any case, there is one point which we think should be insisted on, namely, that wherever the introduction of carburetted water gas is to be practised, the same should be brought to the knowledge of the users. They

have a right to know what they buy, and users of gas for motive power may have something to say in the matter.

As things are at present, though it is obviously unwise in principle to raise the percentage of monoxide from about 6% to 14%, we are bound to admit that in practice the results of so doing are not as apparent and conclusive as might have been expected. At the same time, we are still inclined to emphasise the fact that one swallow does not make a summer.

AMALGAMATION IN THE SOAP TRADE.

Some nine months ago it will be remembered that Messrs. J. Crosfield and Sons turned their business into a limited liability company, making a public issue of £150,000, first mortgage debenture stock so as to raise the necessary extra capital for extending the company's plant and business.

The firm have not stopped here, however, and are evidently bent on further extensions, for quite recently they issued £140,000. "A" redeemable debenture stock, bearing 4½ per cent. interest.

This capital is to be devoted to the development of the company's business in a way calculated to lessen competition, as it appears that it is to be employed in purchasing the business of two well-known Liverpool soap firms, to wit, Messrs. D. C. Keeling & Co., of the Queen's Soap Works, and Messrs. Medley & Son, of Naylor-street.

Though the prospectus shows that there is ample security for the new issue, there is practically no definite information as to how it is to be used. Doubtless the firm have good reasons for not indicating how much they are paying for the businesses they are acquiring, but there are those who we should think, would like to know a little more than is apparent from the prospectus, about the applications of this issue. To the majority of people the name of Crosfield & Sons is sufficient guarantee, but it is not wise to trade too much on good faith, however good it may be.

THE BOILER INSPECTION AND REGISTRATION BILL.

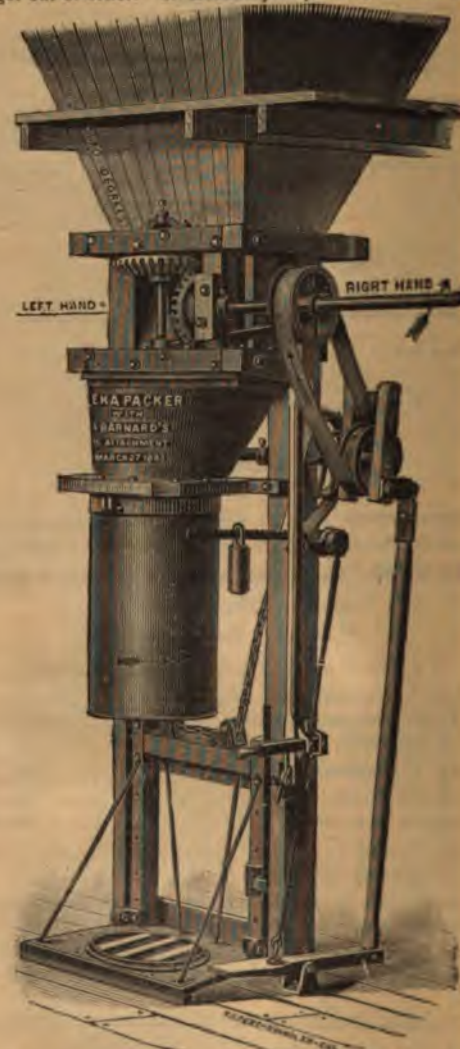
THIS Bill, brought in by Sir E. Gourley, and "backed" by Sir W. H. Houldsworth, Mr. Maclean, Mr. Scott, Mr. Fenwick, Colonel Denny, and Mr. Clare, has for its object "to prevent boiler explosions and save human life." To this end the Bill provides that every boiler, with certain exceptions, throughout the United Kingdom shall be periodically examined and certificated as safe, but the examinations are not to be made, nor are the certificates of safety to be granted, by the Board of Trade or by any other department of the Government, but by competent and fit inspectors, selected by the owner, the owners being held responsible for the competency and fitness of the inspectors they select. The certificates of safety are to run for a term not exceeding 13 months as a rule, but the Bill contains provisions for extending this term, where necessary, to meet the convenience of boiler owners. The certificates are to be renewable on re-examination of the boilers. To ensure the examinations being regularly made, the certificates of safety granted by the inspectors selected by the owners, as explained above, are to be forwarded to the Board of Trade, and the Board of Trade are to keep a register of the examinations made, and to issue to the owner of the boiler a certificate of registration, in exchange for the certificate of safety. The Bill renders it illegal to work a boiler without a certificate of registration. The Bill also affords the boiler owner ample time for getting his boilers examined and registered before the Act comes into operation. The boiler owner is to pay for the examination of his boiler, and forward a small fee to the Board of Trade to meet the expense of registration. No moneys will be required from Parliament.

THE J. R. ALSING PULVERIZER CO.—We are informed by Mr. Atle Fris that he has taken over the business hitherto carried on by Mr. J. R. Alsing as a patentee and manufacturer of pulverizing cylinders, and that he will carry on this business under the name of the J. R. Alsing Pulverizer Co., 53, Gracechurch-street, London, E.C.

A WHITE LEAD PACKER.

THE packing of white lead has long been a task that has those engaged in this trade, as it is not only an unpleasant but a dangerous one when the packers are inclined to care. Numerous suggestions have been made for lessening the effort attach to this operation, but in the majority of cases they have found much favour in practice.

In calling attention to the "Eureka" packer, which we herewith, we do so with the knowledge that it is actually working giving satisfaction in the packing of white lead. On this account following particulars are of more interest than if we had only giving a description on paper of what might prove a useful invention. Messrs. R. Dell and Son, of 26, Mark-lane, London, who are producing the packer, point out the following advantages:—1. Cleanliness and simplicity of construction; consequently they are durable and likely to get out of order. 2. Economy in power; not taking



power of the ordinary screw and auger packers. 3. The comparatively no waste; the auger working inside a tight tube iron pressing the barrel or sack, thereby preventing any flying or scattering about the packing floor. 4. They can pack a uniform amount in every barrel. They are also very tend, starting by a simple movement of a lever, and stopping when a barrel or sack is packed. They can be driven by gearing.

In the old plan the material drops down into the holder weight, carrying the air with it, but in this plan it is packed tube, the barrel or sack receding as it is filled. One great of this machine is its variety of work—packing either barrel of various sizes, which are ready for use when shipped attaching the power. The following details will be useful:—Height, 8 feet 2 inches; width, 2 feet. Speed, from revolutions per minute. Driving shaft 7 feet 4 inches diameter, 4 feet two inches × 1½ inches diameter; weight, 600

The Patent List.

This list is compiled from Official sources in the Manchester Chemical Laboratory, under the immediate supervision of Mr. E. Davis and Alfred R. Davis, who report professionally the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

ing Casks, etc. W. J. Engledue and C. J. Yarnold. 9,300. April 12.
 ing Oil from Peat. F. Rapp-Rosenthal. 9,314. April 12.
 s for Secondary Batteries. Sir C. S. Forbes. 9,317. April 12.
 clal Manures. A. Gladstone. 9,359. April 13.
 iving Scale from Boilers. C. Junge. 9,379. April 13.
 of Hydrogen and Iron. G. W. Gesner. 9,403. April 13.
 ing Zinc Sulphide Ores. H. R. Angel. 9,409. April 13.
 ifacture of Chloride of Baryta and Oxide of Iron. C. M. White. 9,418. April 13.
 ifacture of Red Oxide of Iron. C. M. White. 9,423. April 13.
 e Consuming Furnaces. H. P. K. Peck and J. E. Neal. 9,443. April 13.
 e Consuming and Firing Apparatus. S. Mogyoros. 9,444. April 13.
 ved Paint. J. W. and S. J. Blake. 9,447. April 13.
 charising with Barium Hydroxysulphide and Obtaining By-products. W. Feld. 9,453. April 13.
 Indigo Vat. J. Grossmann. 9,499. April 14.
 e Furnaces. E. Edwards. 9,532. April 14.
 ing Oils. S. Rosenblum, S. Rideal, and The Commercial Ozone Syndicate. 9,539. April 14.
 ives. T. Tevlev. 9,535. April 14.
 ing Sewage. R. H. Reeves. 9,558. April 14.
 ing Sewer Gas and Sewage. R. H. Reeves. 9,566. April 14.
 oved Filter Presses. S. H. Johnson. 9,582. April 15.
 ifacture of Charcoal. W. A. Gustav. v. Heidenstein. 9,656. April 15.
 lizers. C. H. Thompson. 9,704. April 15.
 ing Complex Sulphide Ores. F. Ellershausen. 9,717. April 15.
 s for Stoneware Pipes. H. L. Doulton. 9,726. April 17.
 ing White Lead. J. S. MacArthur. 9,775. April 17.
 ething Linseed Oil. R. W. English. 9,799. April 17.

EXTRACTS OF LATEST COMPLETE SPECIFICATIONS.

These abstracts are specially prepared for the Chemical Trade Journal. ALL RIGHTS of publication are RESERVED. This is the earliest of abstracts of Chemical and allied patents accessible to the public.

Improvements in the Production of Pure Hydrogen Gas. L. V. Pratis and P. Marengo, both of 33, Via Principe Tommaso, Turin. Eng. Pat. 16,277. July 22, 1896.

The gas is produced by the action of dilute sulphuric acid on scrap metal and filings, in a vertical boiler of wrought iron or lead-lined copper. The gas as evolved is passed through a water scrubber, and then through a lead acetate solution. On its way to the holder it passes through a device packed with discs of closely-woven wire gauze. On leaving the holder it is sent through a water valve and an elastic enameled chamber followed by a second gauze device. There are two drawings showing the general and detailed construction. The apparatus is arranged so as to operate almost automatically.

Improvements in Apparatus for Drying White Lead, Colours, and other Powdery, Granular, or Nodular Substances. T. C. Sanderson, 33, Cardiff-road, Norwich. Eng. Pat. 7,868. April 14, 1896.

The horizontal drying chamber, through which an endless web of material is supplied with hot air at one end, which passes off from the top of the chamber at the other extremity. In addition, two small compartments are formed in the main chamber by brattices, which are constructed so as to leave a communication with the top and bottom of the main drying chamber. These are heated by steam pipes, and the hot air, finding its way into the side chambers, is heated, and rising over the top of the brattices, and again comes into contact with the material on the web. The material is fed in by steam-heated hoppers from a hopper, and is thus heated sufficiently to prevent moisture being condensed on its surface from the moisture-laden air which is rising. The web projects beyond the end of the chamber into a chute, down which the dry material falls. There are two drawings.

Process for the Extraction of Metallic Alloys and Pure Metals by Electric Heat. H. Aschermann, 5, Terrasse, Cassel, Germany. Eng. Pat. 159. January 12, 1897.

The separation of pure metals from their oxides is a difficult matter in the metals have a great affinity for carbon. By using antimony as a flux, however, an alloy results, from which the pure metal can be obtained on re-heating. For example, if a mixture of chromium

oxide and antimony sulphide, in the proportion of 10 to 23, is fused in an electric furnace, the mixture forming the cathode, on re-heating the resulting alloy, pure metallic chromium is obtained. A current of 20 to 25 amperes is sufficient in any case. The method is of even greater importance for the preparation of combinations of iron and copper, chromium or manganese.

Improvements in Cement and Concrete. W. S. Robinson, Shubenacadie, Nova Scotia, and S. M. Brookfield, Halifax, Nova Scotia. Eng. Pat. 4,948. February 15, 1897.

The product is termed an iron concrete. It is composed of gravel, sand, broken stone, etc., mixed with metallic iron filings, ferrous oxide or sulphate, this mixture being wetted with brine or sal ammoniac solution. By hydration and oxidation, the mass sets into a compact concrete, ferric hydrate being formed. For road making the mixture is laid, and then watered with brine. To produce a quick-setting hydraulic cement, a small amount of muriate of ammonia is added, and the mass wetted with dilute silicate of soda solution. A cement that sets more slowly, but is very substantial when submerged in salt or fresh water, is prepared as above with the addition of alum and Epsom salts.

Improvements in and Relating to Apparatus for Testing Butter, Margarine, and the like, and in the Method of Employing such Apparatus. R. Wells, 22, Commercial-street, Scarborough. Eng. Pat. 10,627. May 18, 1896.

Advantage is taken of the variations in the time which butter and mixtures with margarine take to solidify. An ounce of butter is melted and poured through a funnel into a cylinder half full of cold water. By means of a button-ended stirrer, the mass is probed until found to be solid. Fifteen to twenty minutes suffice for butter. The addition of 25% of margarine extends the time to 50 minutes. A half-and-half mixture takes 80 minutes, and so on.

THE SULPHIDE SMELTING Co., OF AUSTRALIA.

IN a recent report, the manager of this Company gives the following interesting particulars concerning the erection of the plant:—Everything connected with two large blast furnaces has been completed, surroundings are cleared off, all minor accessories in place, and ready to start smelting at a moment's notice. The plant consists of two 125-ton furnaces, two No. 7½ blowers with air piping valves, &c., 250 indicated horse-power engine, automatic bullion hoist, slag pots, moulds, &c. Duplex pump capable of delivering 50,000 gallons water per hour, Wheeler surface condenser, with which smelter engine exhaust is connected. The whole of the machinery has been running for a week without a hitch. No. 1 roasting plant furnace is complete and ready for work; long flue has been connected with stack. Engine has been given trial run and proved entirely satisfactory. The whole of the machinery connected with and comprising No. 1 furnace is to be tried. Everything ready also for No. 2 roasting furnace, which is still in manufacturer's hands. Building is being extended to include No. 3 furnace, which is in course of construction, and will be ready three weeks after No. 2. The flue for the four reverberatory slagging furnaces is completed, foundation brickwork proceeding, ironwork being manufactured; will be pushed on to completion so as to be ready for fusing fine ore as it comes from roasting plant and goes to smelters. The building to contain the acid chambers for the sulphuric acid plant is completed; framing for carrying leaden walls of chambers is being started; contract for necessary sheet lead and lead piping entered into, and whole of lead required can be supplied locally within a month. The Glover and Gay Lussac Towers are advancing well. A contract has been made for complete installation of electric light, the light to be on in three weeks. Posts for carrying cables are in place, and part of material is on the ground.

THE HARGREAVES-BIRD PROCESS.—The General Electrolytic Parent Company, the owners of the Hargreaves-Bird soda process, do not appear at present to be taking any steps towards the commencement of the manufacture of soda by their process on an industrial scale. They doubtless consider that it will be profitable to watch the developments of the other processes at St. Helens and Weston Point, and to benefit by the experience gained at these two plants. Mr. Hargreaves is devoting his time and energy to the development of his chlorate process. Messrs. Bowman, Thompson and Co., who work this process at Lostock Gralam, in Cheshire, have had a successful year, whilst another plant for working this process is being erected under Mr. Hargreaves' supervision near Paris, and will probably be in operation this year. Our electrical contemporaries should note, however, that the latter process is not an electrolytic one. It is purely chemical and was described in the *Journal*, 489, p. 209.

Official Memoranda.

(From the Board of Trade Journal.)

MINERAL PRODUCTION IN NOVA SCOTIA.

The report of the Provincial Department of Mines for the year ended with September last has been laid before the Nova Scotia Legislature. It shows, in comparison with the year preceding, a noticeable increase in the quantity of coal mined, and a minor increase in gold extracted; but the output of iron ore is less than half that of 1895. The reason given for this serious decrease in iron ore is the importation by the Nova Scotia Steel Company of a large quantity of ore from Bell Island, Conception Bay, on the island of Newfoundland, and also from Spain. A summary of the mineral production of the province during that period, compared with the previous twelve months, is as follows:—

	1895.	1896.
Coal	2,089,245	2,235,472
Coke	47,497	58,742
Gypsum	133,300	130,489
Iron Ore	79,636	36,354
Limestone	39,473	31,471
Copper	—	10
Graphite	—	175
Manganese	110	129
Gold	22,112	25,596
Grindstones (value)	17,189	30,317

FRENCH SUGAR PRODUCTION.

The French *Bulletin* of the Minister of Agriculture for March last, states that the sugar season of 1894-95 is characterised by two principal features, viz., the market increased in the output (a larger amount than has ever been produced in France), and the diminution in prices.

Sugars of 88° have fallen from 33.86 frs., the average price (per 100 kilogs.) of 1893-94 to 26.50 frs., and No. 3 sugars from 35.65 frs., to 27.65 frs. This is a result of the general over-production, to which France, long the most important of producing countries, has only contributed in a slight degree.

Twenty years ago, in 1874-75, Germany produced 250,708 tons of raw sugar, Austria 106,312 tons, France 450,711 tons. In 1894-95 the output of raw sugar has risen in Germany to 1,831,600 tons, in Austria to 1,044,500 tons, but in France to only 745,100 tons.

IRON WORKS IN CHINA.

According to advices from Peking, a number of influential gentlemen of Honan have petitioned the Tsung-li Yamen to be allowed to buy up all the iron ore of the province and smelt it in foreign style in furnaces to be built at a market town called Tsinghuachen, in the prefecture of Weihsifu, Honan. The pig-iron will then be sent by the Grand Canal route to Tientsin, where iron and steel works are to be built at the expense of the syndicate; but the manager is to be appointed by the Viceroy of Chih. The output of the works will be sent to the naval shipbuilding yards of the Government, and they will also supply rails, &c., for the railways of the country. The syndicate intends also to buy four steam launches to tow the iron-laden junks in the Grand Canal. The scheme has been sanctioned by both the Tsung-li Yamen and the Viceroy Wang, of Chih.

MANUFACTURE OF TIN-PLATE IN ITALY.

In a report to the Foreign Office by Mr. E. Fitzgerald Law, it is stated that a business which appears to be developing with much success, and which is in direct competition with an important English industry, is that of making tin-plates. The importation of tin-plates, which were formerly received in considerable quantities from England, has declined rapidly during the last few years, as the Italian industry has progressed, and it seems probable that Italy will, at an early date, supply all her own requirements. The largest tin-plate works are situated at Piombino, on the coast opposite the island of Elba, where there are six rolling mills. The production some time ago, with three mills, was about 80 tons per week, and it is anticipated that this will shortly be doubled. At present the steel bars, for rolling, are imported, but works are being erected for making the bars from Elba iron, which is of excellent quality. A small quantity of bars is received from the Italian steel works at Sestri Ponente, near Genoa. The Italian bars are rather cheaper than English, but are said to be somewhat inferior in quality. The import duty on steel bars is 6 fr. per ton; on black plates, 12 fr. per ton; and on tin-plates, 15 fr.

There are three 8-hour shifts at the rolling mills. Wages are paid by piece-work, men at the rolling mills earning about 10 lire per diem (1 lire = 0.4d.); doublers, 7 lire; furnace-men, 5 to 6 lire; tanners, 4 lire; and lads, 3 lire. The average production per mill per day is 40 tons, but in cold weather it goes up to 50 boxes per day. The Italian hands are said to be very steady, efficient workers.

There must be a considerable advantage, in competition with Italy, in the high rate of production per mill, if the trade union in Italy limits the maximum production for English workers at 50 man per day.

TARIFF CHANGES.

There are from time to time many alterations in the Customs *Sommaire*, which it is well for those trading in chemicals, oils and raw materials to be acquainted with. The following are the most recent changes of interest to the foregoing:—

ANTIMONY, in the raw state, is classified under chemical unenumerated when imported into Italy, and is dutiable at 10 quintal (9.24 d. per 1968 cwt.).

METAL POWDER made of carbon and used for tempering is classed in the same way, and assessed as above.

CARBONATE OF LIME imported into Mexico is charged a 0.06 cents. per gross kilogram.

SOAPS are rated at 3 dols. (pesos) per kilogram when imported into the United States of Columbia.

SALT AND GUNPOWDER are dutiable at 2½ d. to 5 d. per cwt. 2½ d. to 5 d. per lb. respectively on being imported into Liberia.

Legal Intelligence.

CHANCERY OF LANCASHIRE, MANCHESTER SITTINGS.

Before Vice-Chancellor Hall, Q.C.

HARDMAN AND HOLDEN, LTD., v. LOCKWOOD AND CO.

THIS case was heard on Tuesday last. Mr. Sutton and Mr. appeared for the plaintiffs in support of a summons; defendants, who were represented by Mr. Grant, should be required to furnish further and better particulars of their defence. It appeared the statements of counsel that the action was brought to enforce performance of an agreement under which the defendants undertook to supply the plaintiffs for a considerable number of years with 4, yearly of gas tar produced at the Manchester Corporation gas works, Rochdale Road. The defendants had delivered one year's and then refused to make any further deliveries. The plaintiffs claimed that in consequence of this refusal they would be very seriously as they were unable to obtain the gas tar anywhere else, and were unable to carry on their works. The defendants, in their state of defence, said that there had always been a market for the gas tar also alleged that the plaintiffs were not beneficially entitled to the tract, but were the nominees of the Tar Distillers' Association transferred the tar according to the directions of the Association. The Association was, the defendants said, an illegal association, carrying out its objects the members were guilty of a criminal conspiracy. The defendants further alleged that they were induced to enter into contract on representations which were untrue. The plaintiffs, on the other hand, said that, having regard to the nature of the defence, it was essential that the defendants should be required to give further particulars of the matters upon which they relied. After hearing on both sides, the Vice-Chancellor ordered the defendants to give particulars of the directions of the Association under which they claimed that the plaintiffs transferred the gas tar to others, and also a statement of the untrue representations upon which they said they had entered into the contract. His Honour declined to order the defendants to state the markets in which the tar could be obtained.

SULPHATE OF COPPER SHIPMENTS.—The shipments of sulphate of copper from England for the first quarter of this year amount to 21,564 tons for the same period last year—an increase of 6,230 tons or 1557 tons of copper.

ELECTRIC RAILWAY FOR PARIS.—There is a prospect of the construction of the Metropolitan Railway in Paris being shortly in hand. The sub-committee appointed to examine the tender made their report. The motor power is to be electricity, and estimated that some 70,000 tons of copper wire will be required for installation.

THE LEEDS GASWORKERS.—The Gas Committee of the Corporation on Saturday met a deputation from the gasworkers on when the grievances which have led to the men coming out were discussed, the chief one being the extra labour put upon them since the introduction of mechanical stoking machines. It was agreed that the men should return to work for a fortnight under the new rules, pending further discussion of matters between the gas

Reports of Companies.

SAN JORGE NITRATE CO., LTD.

THE eighth annual general meeting of the San Jorge Nitrate Company, Limited, was held on Tuesday at Winchester House, E.C., under the presidency of Mr. Robert Harvey (the chairman of the company). The report and accounts having been taken as read, the Chairman said:—In the first place, you will notice that our gross profit on trading during the past year has amounted to £47,934., as against only £38,654. in 1895, or an increase of very nearly 25 per cent., and when I tell you that that increased profit has been earned upon a manufacture of only 675,000 quintals of nitrate, while in 1895 we made 900,000 quintals to produce a smaller amount of profit, I think you will recognise that, apart from the satisfaction we derive from showing you a so much better result, we are justified in looking for your appreciation of the fact that it has been arrived at concurrently with a considerably less expenditure or exhaustion of your property. Of course, this has been mainly

BROUGHT ABOUT BY THE COMBINATION

which we have entered into with other nitrate manufacturers, to which a reference is made further on in our report. Now, we have been told by many people (some wiseacres of the press amongst them) that these trade combinations, rings, or monopolies—call them what you will—are all wrong, wrong in principle, unwise in their conception and development, and foredoomed to failure; and although this may be more or less true in relation to other matters, we have always contended, and still insist, that the production of nitrate is on a different footing, for this reason. The area of nitrate-bearing ground is not only well defined, but is, so far as we are at present aware, confined to one country—that of Chili—notwithstanding the fact that from time to time the newspapers tell us that nitrate has been discovered elsewhere—in South Africa and other places. Companies have been formed to exploit these deposits; but, so far, the only deposits which have been exploited by them appear to have been those which a too confiding public have paid into the bank in application for shares in such companies; and I have here an offer from one of the most recent of these extraneous creations to sell at an alarming sacrifice a complete nitrate-making plant, which has been ordered (and, I trust, paid for also), but has never been used—some part of it, indeed, never having even left the manufacturers' premises. The South American producers have, therefore, a virtual monopoly, and if instead of a senseless opposition, leaving no profit on their own or others' production, by making and shipping an enormous amount of nitrate, for which there is no demand, they prefer to combine and produce only such quantities as the world can consume, surely they are doing not only a wise and proper thing, but following the only course open to them as wise and sensible men of business.

By taking this step, instead of giving their raw material away for nothing, or manufacturing it, as many would do, at an actual loss, they are enabled not only to sell their produce at a fair and reasonable profit but to conserve their caliche for future years. I think, therefore, that this matter is one which you, as nitrate shareholders, will consider incapable of further argument, provided always that, as we have arranged, no artificial scarcity is brought about to unduly enhance prices and check consumption in that way. I may say that the combination, although I speak generally in favour of it, is, in my opinion, far from complete, as, although we have made an arrangement to reduce our output to the requirements of the world, we still out-bid each other, and we compete with each other for the sale of our productions.

THE NITRATE COMMITTEE THE ONLY SELLERS.

I hope, possibly, that at no distant day we may see the idea realised that all nitrate shall be disposed of through one firm or one person, or through the nitrate committee. At present, however, we only work five months out of the twelve, and as to the production during those five months we compete for its sale. The price is low just now; but I think it will be possible for a fair price to be realised later on. Anyhow, the combination is the best we have been able to arrive at, but it is far from complete so long as we compete for the sale of an article in which we hold not a virtual, but an absolute monopoly.

The next paragraph of our report deals with the fact that, as I intimated to you last year, we had now finally got to the end of the prolonged dispute as to the company's title to a very small portion of the San Jorge Estate. So far as we were concerned, there was never any doubt about the matter; but the Chilean Courts move even more slowly than our own are sometimes accused of doing, and, acting in your interest and on the faith of the statements made in the prospectus, we would not part with the £50,000. balance of the purchase money until we were assured that no further possible question could arise. We have received that assurance, not only from our lawyers on this side, but also from our legal representatives and advisers in Chili. In order, however, to make "assurance doubly sure," we took the precaution of securing

from the vendor a proper indemnity and guarantee against all possible or impossible claims which might be made upon us hereafter in respect of that portion of the property, and then handed over the balance due to him. I am quite sure that shareholders will recognise the extreme care which we have exercised in this matter, and your adoption of our report will be taken as a confirmation and approval of that payment. I have only to add in this connection that the vendor has borne the whole of the law costs in Chili arising out of this matter, the small amount of £52. 18s. for legal charges appearing in our profit and loss account being merely the cost incurred by the directors on this side in satisfying themselves that they would be justified in making such payment. Finally, you will see that our manager reports that everything is working to his entire satisfaction at San Jorge, the plant and machinery being in a good and efficient state of repair, and the grounds still yielding the most satisfactory results. I may tell you that, while our average selling price has been higher this past year, our

COST OF PRODUCTION WAS LOWER,

and our profit per quintal of nitrate, in consequence, nearly doubled. You will see, too, that our stocks of nitrate and iodine on hand at the end of the year have been considerably reduced, these remaining to be shown in our balance-sheet being taken at the actual cost price of manufacture, which, when fully realised, will show a very considerable further profit. We have scarcely touched our virgin grounds, though we have used some small portion of them for a trial. We have merely used the waste pieces which existed in former workings.

DESTRUCTIVE FIRE AT GLASGOW.

A FIRE, causing damage estimated at over £50,000., occurred this week at Kinning Park Sawmills, Glasgow, the property of Messrs. Anderson and Henderson. The premises were very extensive, covering nearly four acres of ground, and they contained an immense quantity of timber, besides valuable machinery. The fire broke out in the resin department, and in a few minutes the whole of that section of the works was in flames. It quickly extended to the joiners' shop and machine department, where the dry wood and open structure were consumed with the greatest rapidity. The attention of the fire brigade was directed to the part which first caught fire, and to saving Kinning Park Parish Church, which is built close to the works, and which was for some time in jeopardy. The Govan, Kinning Park, and Glasgow fire brigades were engaged, and despite their efforts the conflagration increased. For some time the greatest fear prevailed lest the goods department of the Caledonian Railway, which adjoins, might be involved. Here a large quantity of petroleum was stored, and it was fortunately saved. For nearly three hours the fire gained ground, and by this time about two acres of ground had been swept clear of their heavy stock of timber, all the buildings being reduced to ruins. As a matter of fact, the firemen did not attempt to extinguish the flames, but only to save the church, the tenements near by, and one shed to which it seemed possible to prevent the flames spreading. These efforts were successful, and the shed, the log sawmill, and a number of stacks of wood are all that remain of the extensive works. Messrs. Anderson and Henderson employed about 180 hands. The firm will immediately begin rebuilding, so that there will be, as little delay as possible in restarting all the employes. The works were insured, but it is understood that the insurance will not wholly cover the damage.

ORNAMENTING PROOFED FABRICS.—Two patents have been granted to Mr. Isidor Frankenburg, waterproof manufacturer, of Manchester, which have attracted considerable attention and which will be of considerable importance to the trade. These patents are for the ornamenting of the proofed surfaces of single texture fabrics by the use of aluminium powder applied to the surface by a printing machine to give the desired design. The grant of both patents was opposed by S. Wiener, another manufacturer, on the ground that the invention was not new, and had already formed the subject matter of several patents in which various metallic bronzes had been used. At the hearing of the case, it was pointed out to the Comptroller that on account of their deleterious effects upon rubber compounds it was impossible to use any of the old bronzes with satisfactory results, as the rubber was decomposed and the metallic particles tarnished, whereas no such effects were produced by the use of aluminium powder. The opponent was not only unable to show that aluminium had ever before been used in this manner and for this purpose, but was unable to disprove the evidence as to the value of the aluminium powder as compared with bronzes for the purpose of ornamenting proofed fabrics. The Comptroller, after taking time to consider the matter, has decided that no prior patents anticipated the invention for ornamenting with aluminium powder, and that Mr. Frankenburg was entitled to patents therefor.

ELECTRO-CHEMICAL AND METALLURGICAL INDUSTRIES.

FOR some time past a series of articles by Mr. Kershaw have been running in the *Electrician*, and in the last of this series the author presents a summary of the position of these industries, and also hazards a few conjectures as to the probable future of electricity in industrial operations. In table I. the present status is shown at a glance. Dealing with the items *seriatim*, the author makes the following comments:—

Copper Refining.—This industry may certainly be regarded as a permanent one. It is almost impossible to conceive a more satisfactory process for extracting the small percentages of impurities from commercial copper. Should bimetallics, fail to bring about any change in currency policy, either in Europe or America, the growth of the electrolytic copper refining industry will be regulated alope by the demand for pure copper for electric construction purposes. The demand for all the older branches of electrical construction work—such as telegraphs, telephones and electric lighting—will be reinforced by the extra demands arising from the development of electric traction, and of the industries noted in this article. The production of electrolytic copper will, therefore, rapidly increase, in order to meet this rapidly-growing demand. The position occupied by our own country in this industry is hardly satisfactory. The cost of power in electrolytic copper refining only amounts to about 6s. 3d. per ton of refined copper (taking the energy efficiency at 31 per cent., and the cost of the electrical horsepower hour at 4d.), and therefore the advantages to be gained by use of water-power are small. The United States refiners should not be able to refine copper cheaper than we can refine it at Swansea or Widnes; and although they have decided to refine all the copper they export, it is well to remember that 49 per cent. of the world's supply of raw copper comes from other countries. It should, then, be possible for us in this country both to obtain a supply of raw copper and to refine it as cheaply as they refine their raw copper in the United States. Our present output of electrolytically refined copper is certainly less than our consumption for manufacturing purposes. It is estimated at 15,000 to 20,000 tons per annum—only about one-fifth of the total world's production of electrolytic copper. The attention of capitalists might with advantage be directed to the development of this industry in this country.

TABLE I.—*Electro-Chemical and Electro-Metallurgical Undertakings.*

Country.	Copper.	Aluminium.	Alkalis & Chlorine.	Chl'rates	Silver & Gold.	Miscellaneous.	Totals.
Germany	*8	...	7	2	2	19	38
United States	16	3	5	1	5	7	37
Gt. Britain & Colonies ..	4	1	4	2	...	16	27
France	7	2	...	1	...	8	18
Transvaal	...	...	...	...	8	...	8
Switzerland	...	1	...	2	...	3	6
Austria	...	...	2	...	...	1	3
Sweden	...	...	1	1	...	...	2
Holland	...	...	...	...	...	1	1
Norway	...	...	1	...	...	...	1
Belgium	...	...	...	...	...	1	1
Grand Total	...	...	...	...	...	...	†142

* Probably incomplete returns. † Only 12 to 20 of these are experimental.

Aluminium.—The process by which aluminium is produced will remain an electro-metallurgical one; though it is possible that the sulphide may be substituted for the oxide. The attempts to reduce aluminium by ordinary furnace methods will probably never meet with success, owing to the heat required being so much higher than anything yet attained by ordinary combustion. The industry may therefore be safely regarded as a permanent one. The development of the industry is necessarily bound up with the demand for aluminium; and some of the uses for which aluminium is so eminently fitted by its lightness have, owing to some defective characteristics, not led to the development that was hoped. Thus, for example, its use for boat building has not been a success; and Moissan has attributed the failure to the presence of a small percentage of sodium in all the aluminium produced by present methods. Aluminium is also handicapped in the competition with other metals by the fact that it is much weaker than steel and denser than copper or brass. The first renders its use impossible for many purposes where strength is the chief desideratum; the second retards its adoption where strength is of less account, and cheapness and non-corrosion are the most important characteristics. Some of the aluminium bronzes possess a strength about equal to that of steel, but they only contain from 4 to 10 per cent. of aluminium, and, therefore, are little lighter than other alloys, or than steel itself. A reduction in the cost of production, and an improvement in the purity

of commercial aluminium, are therefore the two chief factors which will determine the rate of development of this industry in the future. As regards our own country, the British Aluminium Company are now producing at the Falls of Foyers Works; M. Ristori states that they hope soon to be the largest producers in Europe. Our position, then, may be regarded as satisfactory.

Caustic Alkalies and Bleaching Compounds.—The future of this industry is more uncertain than that of the two already noticed. The period of competition with other processes is, in their case, past; in this case it is only just commencing, and electrolytic alkali processes are faced by two rival chemical processes, each in the hands of powerful trade organisations, possessing large capital and immense vested interests. The statement of cost and sale prices proves that the margin for profits is less than some have calculated. The success of the electrolytic caustic potash works is not absolute proof that caustic soda production will be equally successful. It seems more probable that the electrolytic processes will exist as rivals of the older chemical processes than that the latter will be completely supplanted. There is no reason why this manufacture should not develop successfully in this country, since nearness to supplies of brine, coal, and lime is quite as important as cheap power supply. Our present position is not entirely satisfactory, since two of the four plants in operation are merely experimental in character.

Chlorates.—The future of this electrolytic industry is more certain. Both theoretical and practical considerations indicate that it will be a permanent industry. The electrolytic process will gradually supplant the older one. Potassium or sodium chloride is the only raw material. In the case of the former, little or no fuel for evaporating purposes is requisite in the manufacture. The production is one, therefore, eminently adapted for remote places, where large water power can be made available with little expense. The simplicity and cleanliness of the process are two other factors that will help to cause its development. Since the manufacture is so specially suited to out-of-the-way districts, where natural water power exists, we cannot hope to see much development of this industry in our own country. [In the light of our remarks on "Wasted Energy," we think this statement is unduly pessimistic.—Ed. C.T.J.] In the past we have practically produced the whole of the world's consumption of chlorate by the older chemical process; the change to electrolytic methods of manufacture will, therefore, be a serious loss to our country.

Gold.—The future of the electrolytic gold recovery process is also assured, judging by present indications. The power required is so small that it is inconceivable a cheaper or more satisfactory process should supplant it. In all mining districts where the cyanide extraction process is used, we may, therefore, expect to see the use of the electrolytic gold recovery process extending, and this process supplanting the older zinc precipitation process. That the electrolytic process will survive in its present form is unlikely. Since, with the exception of small amounts in Wales, no gold ore is mined within this country, this industry will necessarily develop in other lands. It may still, however, be regarded as one which will develop under our flag; for, with the exception of the Rand gold fields, the chief gold mining districts of the world are within the bounds of the British Empire.

Silver.—The production of pure silver by the electrolytic method is likely to remain a permanent industry. No other process can compete, either in simplicity or cleanliness, with this electrolytic refining process. It is not quite clear why no electrolytic silver refinery should exist in this country, and there would appear to be an opening in this direction for the employment of capital and brains. More bullion probably finds its way into London than into any other city of the world; and a large proportion of this, one cannot doubt needs further refining.

Calcium Carbide.—Since calcium carbide can alone be made on an industrial scale in the electric furnace, this industry is safe from the competition of rival processes; and its future development depends solely upon the demand for calcium carbide. That it will be a permanent industry is, therefore, certain; that it will be a great one is doubtful. Two evils, so often found attending the early development of new processes in these days, have fastened upon this industry. Exaggerated statements as to the possible uses of calcium carbide have been circulated, and, on the strength of these, company promoting has been recklessly indulged in. In this country and the United States large sums have been paid for patent rights which are of exceedingly doubtful validity. According to Borchers, and the editor of the *Scientific and Mining Journal* of New York, no patent can cover the production of calcium carbide from lime and coke in an electric furnace. The development of the industry will therefore be attended by those disadvantages and hindrances customary when over-capitalisation has been indulged in. As regards the uses of acetylene gas for illuminating purposes, it is well to remember that it will have to meet three rivals—coal-gas, oil, and electricity; the first two of which have a decided advantage on their side in price, and the latter in convenience. The cases, therefore, in which acetylene will be used as an illuminant are hardly likely to be sufficiently numerous to cause great developments

the manufacture. With regard to the use of acetylene for engines, there is little prospect of its use becoming general, on account of its much greater cost as compared with oil or gas; and its base of a synthetic manufacture of organic chemicals is barred by economical difficulty. This question of economy does not have attracted much attention from the authors of these statements. The future developments of this industry will be much less vigorous than many have been led to expect; they may see some of the over-capitalised existing companies meet disastrous experiences before the industry settles down upon a permanent basis.

Carborundum.—This product, like calcium carbide, can be produced by the electric furnace, and its manufacture is likely to be a permanent one. Carborundum has already found use as a polishing agent in many manufactures, on account of its superior hardness; and as it becomes more widely known the demand for it is likely to increase. [The iron and steel trade also is a fresh field.—ED., C. T. J.] Since a cheap and large water-wheel is essential for its profitable manufacture, this industry is not likely to be introduced into our own country.

Electrolytic Ores.—The electrolytic processes for extracting zinc from its sulphide ores containing silver would appear to have a future before them, and may be regarded as leading to a new industry. The capital already sunk in these (£1,600,000.), and the success of the electrolytic extraction processes with zinc ores, not containing any appreciable amounts of silver, is evidence in itself; since in these cases the ordinary reduction is not applicable, and, though wasteful, is much less costly in the long run.

All these processes will pay best when carried on at the source of the ores, therefore, will be chiefly in Australia and in other countries outside the Empire.

Aluminum and Potassium.—The electrolytic method of manufacture is safe from displacement by any rival method; but unless new applications are found for these metals, the manufacture can develop into one of any magnitude. This manufacture is at present chiefly in English hands.

Sanitation Process.—The future of this process is doubtful, it will have to compete with many rival processes for treating sewage. The fact that, at a reasonable cost, deodorisation, and not disinfection, is alone effected will also tend to limit its field of application.

More and similar Copper Processes.—The future of these is absolutely assured; for although the difficulties caused by the manufacture of the same articles by the older methods, and the fact that they can be worked at a lower cost than the electrolytic processes. If they should grow into a large one, however, our own country is well adapted for its successful development.

Ozone.—The method used for producing ozone on an industrial scale by electrical discharges may be regarded as a permanent one. But for ozone is, however, a very limited one; and since the use of ozone is likely to be much more expensive than by the other agents, its use for this purpose will only occur in special cases. If other uses for ozone on an industrial scale should be found, the industry will develop and may become a large one. This can only occur, however, in connection with other manufactures, and it is impossible to say whether it will occur in this country.

Compounds.—The use of electrolytic methods in the manufacture of organic chemicals is likely to extend, and the innovation is likely to be a permanent one. As Germany has practically a monopoly in the manufacture, the development will occur principally in that country.

Hydrogen Gas.—If any use should be found for this gas, which is produced in great quantities as a by-product in all the electrolytic-chlorate processes, this branch industry might become a very important one. Attention is being directed towards gas batteries for this purpose, and the development of the hydrogen gas manufacture upon the success of this, or other schemes, for its use.

Lead.—This industry may become a very large one, since, if the high costs of the electrolytic process be not much greater than the older methods, there may possibly be legislation in this country to prevent the evils arising from lead-poisoning in operating the older method. It has only been tolerated so long because no other satisfactory economical method was known. The industry, if it should develop, is likely to flourish in our own country.

Galvanized Iron.—Electro-galvanising processes have already met with success when worked on an industrial scale; and their use is likely to extend gradually in centres of hardware manufacture; and so in connection with other industries. This industry should be encouraged in our own country, since cheap power is a very secondary consideration.

Conclusion.—This forecast of the future prospects of these processes, taken in conjunction with the numbers gathered in Table I. (which show that 142 undertakings are in actual operation), proves that Mr. Mond's prophecy, in his address last year to the Chemical Section of the British Association (C. T. J. 1888, p. 193) was much less hopeful than was justified by an unbiased consideration of the actual facts. Electrolytic methods of manufacture have made remarkable progress in the last ten years; the larger number of electro-chemical and electro-metallurgical operations at present carried on may be regarded as the early development of permanent industries; and the natural growth of these, with the new applications on an industrial scale which are certain to occur as the years roll on, will make the industrial future of electro-chemistry and electro-metallurgy one of greatest success.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Washington, gives the following returns of the exports of petroleum and petroleum products for February, 1897. The total shipments were 72,378,443 gallons, compared with 57,963,088 gallons in 1896. The total for the eight months ending February, 1897, was 635,582,257 gallons, against 586,416,860 gallons during the same period in 1896. The details of the shipments are as follow:—

CRUDE PETROLEUM.		Gallons.
Total, Feb., 1897	8,301,238	
" " 1896	7,413,237	
NAPHTHAS.		
Total, Feb., 1897	1,093,630	
" " 1896	403,632	
ILLUMINATING.		
Total, Feb., 1897	59,447,022	
" " 1896	45,162,249	
LUBRICATING AND PARAFFIN.		
Total, Feb., 1897	3,489,513	
" " 1896	3,983,130	
RESIDUUM.		
Total, Feb., 1897	47,040	
" " 1896	840	

EXHAUSTING LAMPS BY THE "CHEMICAL" METHOD.

THE exhaustion of incandescent electric lamps has up to the present been almost universally done upon mercury pumps. Two classes of pumps have been generally used, the Geissler, and the Sprengel pump. The engineers of the General Electric Company's Edison lamp works have always advocated the Sprengel pumps.

From time to time during recent years mechanical vacuum pumps operated without mercury have been brought before the public, and while the engineers of the General Electric Company have fully appreciated the advantages of such pumps, they have been prevented from adopting any of them, owing to the large size in which these pumps have invariably been made, the object of their inventors being to exhaust a very large number of lamps at the same time, which the General Electric Company's engineers have always considered bad practice.

Recently this Company succeeded in obtaining a small mechanical vacuum pump, whose rate of exhaustion is such that it can practically be employed to exhaust only one lamp at a time. Lamps exhausted by the new process, when compared with those exhausted on mercury pumps, have proved to be superior to them in every respect, including length of life and ability to maintain their initial candle-power during their life. The success of these early experiments led to the rapid introduction of these small pumps, so that now nearly the entire product of the Edison Lamp Works is exhausted by them.

The final perfection of the vacuum, however, is not obtained by the pump unaided. The natural residual gases in an incandescent lamp may be called conducting gases, as they allow currents to pass through them from one leg of the filament to the other. By any other method than the one we are now describing the last traces of these gases are very hard to remove from the lamp, and are very injurious if not entirely removed. Their removal requires a long time on the mercury pumps generally used. By the new method, usually called the chemical exhaustion, when a pump has taken out all but the residual gases, a gas capable of combining with these residual gases is introduced into the bulb. When this combination takes place the lamp is ready to be sealed off, and the vacuum space is found to be in a thoroughly insulating condition. The advantages of this method of exhaustion are:

First: The phenomenon of the introduced gas combining with the residual gases, and thus perfecting the exhaustion, is so marked as to make the perfection in each lamp more certain than by the old method.

Second: Lamps are exhausted one at a time, and the whole attention of the operator is therefore given to each lamp.

Third: The operator does the work sitting in a comfortable position, does not get tired, and can do as careful and accurate work late in the afternoon as early in the day, which is not the case in systems in which the operators are obliged to stand while doing their work.

Fourth: The lamps are conveniently arranged by the side of the operator, and get the least possible amount of handling. This fact alone saves considerable breakage.

Fifth: The injurious effects of mercury upon the health of the operators are entirely avoided.—*Electrician*.

Trade Notes.

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—The last meeting of the session will be held in the Chemical Laboratories, University College, on Wednesday, May 5th, at 7 p.m. Business: 1. Note on "The Volumetric Estimation of Zinc," by Mr. E. G. Ballard, Assoc. R.S.M.; 2. Paper on "Apparatus for Gas Analysis," by Mr. J. Kent Smith and Mr. J. W. Towers.

SOCIETY OF CHEMICAL INDUSTRY: Scottish Section.—Owing to a double failure in the promise of papers, April meeting, held in Glasgow, Tuesday, 27th, was confined to the election of office bearers. Mr. G. T. Beilby becomes chairman, and Professor G. G. Henderson vice-chairman.

LONDON APRIL INDIGO SALES.—The second auction of the year commenced on Monday, with a declaration of 10,200 chests, 205 since withdrawn, leaving 9,995 to be brought forward. Messrs. J. Kenyon and Sons quote the following alterations, namely, Shipping Bengals, Consuming, and Oudes, par to 2d. decline; Colory Kurpah, par; Common Kurpah, 2d. decline; Dry Leaf, par. Withdrawn 2,151 chests, bought in 187, sold 438, passed 2,776.

CROWN LAWN FERTILIZER.—The Grove Chemical Co., Ltd., of Appley Bridge, near Wigan, sends us the following particulars of the new grass fertilizer they are introducing. The manure is very concentrated, specially adapted for grass, and should be sprinkled on lightly during a shower of rain, and not in fine or dry weather. Particular attention is called to the fact that, owing to its strength, it should not be allowed to come into contact with the stems of plants, or it will seriously injure them. If required for ordinary purposes, such as for flower beds or planting, it may be suitably reduced in strength by mixing with it about sixteen times its weight of soil. It is also beneficial to put a handful of the fertilizer into a barrel of the water that is to be used for digging or watering purposes, but this quantity should not be exceeded, or the liquid will be too strong.

THE BROXBURN OIL COMPANY, LIMITED.—The books of this Company (subject to completed audit), after paying interest on borrowed money and all current charges, show, for the year ending 31st March, a gross profit of £42,688 16s. 8d. The directors at their meeting on Wednesday agreed to recommend to the shareholders at the annual general meeting on Wednesday, 19th May, that the same be disposed of in the following manner:—For depreciation on capital expenditure, being at the rate of 5 per cent, £13,044 2s. 5d.; in payment of a dividend at the rate of 5 per cent. per annum on the preference shares of the Company, £6,000; in payment of a dividend at the rate of 7½ per cent. per annum on the ordinary shares of the Company, £14,981 5s.; to the credit of retort renewal account, £7,000; leaving a balance to be carried forward of £1,643 9s. 3d. The dividend is the same as last year, when £13,510 was written off for depreciation, £14,544 placed to renewal account, and £650 carried forward.

INDIAN INDIGO CROP.—Messrs. J. Hatton Hall and Co., of Calcutta, report as follows on the Indian indigo crop. Up to the beginning of the last week in March the prospects of the coming crop, especially in Behar, were exceedingly gloomy, owing to complete lack of moisture in the ground, in consequence of which the sowings would not germinate. "We are glad to report, however," Messrs. Hall and Co. remark, "that during the past few days rain has been general throughout the districts, and planters are now busy resowing where necessary, and are also enabled to fill up much of their land previously left empty through lack of moisture. In Lower Bengal, Midnapore and Purneah report the best falls of rain. Purneah plant has suffered somewhat from blight and caterpillars, and a considerable amount of land has had to be resown on this account. Behar reports an abundant rainfall. Caterpillars have done a great deal of damage to the plant in places, but it is probable that they will now disappear, and the plant should recover itself. The somewhat limited news from Benares is of a satisfactory character. Heavy rain has been received in places, and planters, who are now sowing, anticipate fair results.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There has been fairly well doing in benzols, but prices are still in favour of 50/90's at 2s. 4d., 90's range from 2s. to 2s. 2d. Carbolic acids are very firm, and crude (60%) is up a penny, to 2s. 7d.; crystals (40%) and liquid are steady, but unchanged at 8d. and 1s. 1d. respectively. Crude naphtha stands at 1s. 1d., while solvent is scarce at 1s. 8d. Anthracene has been moving fairly well at 7d. for 30% A and 5d. to 6d. for B. Pitch has been selling more freely at the low prices ruling, East Coast value being 22s. 6d. to 23s., f.o.b.

Sulphate of ammonia seems a little more lively, owing to the call for covering purposes, and in consequence the price at some ports has been advanced. Beckton is still quoting £7. 6s. 3d., London outside makes figure at £7. 8s. 9d. to £7. 10s., Liverpool £7. 15s., Hull £7. 11s. 3d. to £7. 12s. 6d., and Leith £7. 10s. to £7. 12s. 6d., all prompt.

REPORT ON MANURE MATERIAL.

Business at present is for the most part for prompt or early delivery, and in this position a very satisfactory demand. Quotations for mineral phosphates are unchanged, and there is very little doing in any position. For crushed Kurrahee bones £3. 17s. 6d. per ton is now asked, but £3. 15s. is probably nearest value. Quotation for Bombay bone meal is £3. 15s., but for autumn shipment 2s. 6d. to 5s. per ton less would be cabled out, with prospect of business. Nitrate of soda is in good demand at 8s. to 8s. 1½d. per cwt. for good to refined quality, on spot. Finely-prepared dried blood, testing about 16% ammonia, offers at 7s. 6d. per unit, in bags, gross weights, delivered f.o.b.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade business remains tolerably brisk. There is a good inquiry for bleaching powder and caustic soda for export. Prices have undergone no change in the past week. Bleaching powder quoted £6. 7s. 6d. f.o.r. makers' works, and £6. 12s. 6d. to £6. 15s. hand-woods, f.o.b. Liverpool, Tyne, etc. Ammonia alkali, 58%, remains at £3. 17s. 6d., f.o.r., in bags. Leblanc ash, nominally, 1d. to 1¼d. per degree, f.o.b. Soda crystals and bicarbonate is in good demand, and prices are firm. Chlorates have a weaker tendency; potash, 4¼d. to 4d. per lb.; soda, 4¾d. For caustic soda, prompt and forward, quotations f.o.b. Liverpool, are as follows:—77%, £9. 2s. 6d.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d., nett, per ton. Hypo-sulphite of soda £5, nett, f.o.r. For sulphate of copper price is weaker at £17. 5s., f.o.b. Sulphur firm at £4. 12s. 6d. to £4. 15s. per ton. Saltcake steady at 19s. to 20s., f.o.r. There is still a good demand for potash, caustic, and carbonate—best makes of carbonate, 90%, at £17. 5s. to £17. 10s., c.i.f.; caustic potash, 90%, £24; Prunelle of potash quiet at 5d.; soda, 3¼d. per lb.; cyanide, 98/100%, 10½d. to 11d. Acetate of lime, brown, firm at £5. nett c.i.f.; grey, £8. to £8 5s. Acetate of soda, £13 nett. Acetic acids, quiet, and price unaltered. Iodine reduced to 7½d. per oz. Sal ammoniac and muriate quiet. White powdered arsenic, £23. 10s. per ton, f.o.r., with only limited supply thereat. For alum the export demand has considerably fallen off. There is a fair inquiry for other alumina salts. Green copperas in good request at 25s. to 30s. per ton, in chief centres of consumption. Trade in sulphocyanides is very dull.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron: Scotch warrants closed at 43s. 2½d., Middlesbrough 38s. cash, and hematite 46s. 4d. Copper quiet: Chili bars, G.O.B.'s and G.M.B.'s, closed at £48. to £48. 9-cash, and £48. 7s. 6d. to £48. 12s. 6d. three months. Tin bull: Straits closed at £59. 16s. 3d. to £60. 6s. 3d. cash, and £60. 7s. 6d. to £60. 17s. 6d. three months; Australian, £61. 5s.; English ingots, £63. 15s. to £64. Lead quiet: Spanish, £11. 15s. to £11. 16s. 3½; English, £11. 18s. 9d. to £12. Silesian spelter, ordinary, £17. 7s. 6d.; Nickel, 1s. 2½d. Antimony, £30. 10s. to £31. Quicksilver firm: First hands, £7. 5s.; second hands, £7. 4s. Copper shares quiet: Cape, 2½ to 2½; Copiapo, 2½ to 2½; Libiola, 2½ to 2½; Mason and Barry, 2½ to 3; Rio Tinto, 26 to 26½; Tharnis, 5½ to 6½. **GLASGOW, WEDNESDAY.**—Market flat, and a good business. Scotch done at 43s. 4d., 43s. 2d., and 43s. 3d. cash; also at 43s.

ne month; buyers, 43s. 2½d. cash; sellers, 43s. 3d. one at 38s. cash and 38s. 2d., 38s. 1d., and 38s. 3d. one ers, 38s. cash; sellers, 38s. 0½d. Cumberland hematite 5½d. to 46s. 4½d. cash, and 46s. 7½d. to 46s. 7d. one ers, 46s. 4d. cash; sellers, 46s. 4½d. Middlesbrough at 47s. 3d. cash; buyers, 47s. 3d. cash; sellers,

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

Oil, though lower in price is still slow of sale, and little business to report. Lagos is quoted £19. for spot, live is firm, Seville having been moving fairly well at £30. ere is no change in Linseed, which remains steady at 15s. 6 per cwt. in export casks, according to quality. Cotton- better, Liverpool refined now being quoted 15s. 3d. to in export barrels, holders being firm thereat. The spot ll kinds of Castor Oil is very steady, and prices are well with good seconds Calcutta at 3d., first pressure French as 3½d., and Bombay 2¾d. per lb. Tallow, though phatically dull. Resin continues to meet with a fairly on spot prices for all grades, being steady and unchanged. rentine are in moderate demand at 21s. 3d. per cwt. ntinues to rule dull, with American 5¾d. to 7d. and ed 5¼d. to 5¾d. per gallon.

S.—Prices are steady, and practically without change. ordshire, common, £10., medium, £12., best, £15., common, 40s.; medium, 50s., best, 60s.; Welsh, best, 50s., and common, 18s.; Irish, Devonshire, 40s. to J.C., 65s. Umber: 40s. to 45s. White lead, £16. changed. Venetian red, £6. to £10. Cobalt: Pre- 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

BEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

After the holidays the feeling continued at first quiet, as air has since been a little more of movement. Accounts demands for Baltic shipment show an improvement and, even, to activity, while the home section of the outlet picked up a little. The price list exhibits hardly anything ut sulphate of copper tends downwards a little, and borax ulphate of ammonia has recovered something since last d is now at £7. 12s. 6d. prompt f.o.b. Leith, with however t all passing as regards forward delivery. The prices given mineral oil and paraffin section are the nominal ones, the ntered on, being the dead season. Actual values rank in lubricants) than the figures given, but the time of ad- for the next season is not come yet.

es current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, /62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. w; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., s. 6d., and cream 60/62° £6., all nett, Liverpool; bleach- £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, refined, nd boracic acid, £28. nett, Glasgow; bicarbonate of asks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; f potash, 4½d. nett, for Scotch and English deliveries (for . nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for English deliveries (for export, 3½d. nett, f.o.b. Glasgow); otash, 4½d. less 5%, any port; nitrate of soda, 8s. sulphate of ammonia, £7. 12s. 6d. prompt, f.o.b., moniac, first and second white, £35. and £33. nett, phate of copper, £17. 10s. to £17. 15s., less 5%, Liverpool; e, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin semi-refined, 1¾d. to 2d. per lb.; paraffin spirit ¾d. per gallon; paraffin oil (burning) No. 1, 6¼d., and d., at Glasgow and other big centres, for Scotch buyers es ½d. to ¾d. lower); ditto (lubricating) 865° £5. to ° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. orts of sugar at Greenock were 25,956 bags beet unrefined, gs beet crystals refined.

PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The market values upon the week have been well main- tations in advance of those recorded a week ago. Some ents are being made from here to East India of linseed oils. to date as against the same time a year ago have been:

Linseed, 177,729 qrs., against 196,017 qrs.; rapeseed, 38,281 qrs., against 26,163 qrs.; cottonseed, 79,272 tons, against 66,643 tons; oilcake, 3,189 tons, against 5,074; olive oil, 1,222 tuns, against 2,379 tuns. Linseed oil is steady, at 13s. 6d. per cwt. naked spot; forward May-August, 13s. 10½d.; last four months business done at 14s. 3d. Boiled and refined £1. to £1. 10s. per ton extra. Refined cotton oil value well maintained, quoted spot, naked, 13s. 3d. per cwt.; forward May-August, 13s. 7½d. per cwt.; filtered refined is quoted about £1. advance. Crude oil is quoted, spot naked, 11s. 10½d. per cwt. Casks £1., and ordinary barrels £1. 10s. per ton extra. Castor oil, pressed here, 2¾d. per lb.; and first pressure French, 3¾d. per lb.; Calcutta, first pressure, 4d. per lb. Candia and Malaga olive oils, £31. per ton. Cod oils, £15. to £18. per ton. Oleines from £16. to £18. per ton. Turpentine 21s. 6d. per cwt. Italian olive oil soaps from £16. per ton, c.i.f. Hull. Yorkshire grease, £8. to £9. per ton. Lard dull and lower: pail lard, 25s. per cwt. Butters lower: Danish and Swedish, 97s. to 106s.; Dutch, 85s. to 92s.; Colonial, 76s. to 92s.

CAKES.—The demand for the time of year is well maintained, though some mills are already closed or working short time. Prices are unchanged.

PAINTS.—Manufacturers continue active, and in some quarters there is difference of opinion as to the demand being equal to last year. Prices are: White lead, £16. 10s.; red lead, £14. 10s. to £15. Ready mixed paints, variable according to make, from £24. per ton. Imperial black varnish, £5. 10s. per ton. Paint remover, 25s. per cwt., in bulk. Dry mineral colours, £3. to £8. per ton. Ordinary paints in oil from 10s. per cwt.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet with only a moderate business doing, though there is a rather better demand for caustic soda. Prices, generally, are unaltered; Soda crystals, £2. 12s. 6d. per ton, gross weight, locally. Sulphur scarce at £5 per ton. Caustic, 76/77%, £8. 15s. to £9. 70%, £7. 5s. to £7. 10s.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton. nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett, do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett, hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady at 9s. per ton f.o.b. Tees.

COALS.—Business is fairly steady and there is a good demand for Best Northumbrian steam, bunker, and small steam. Coke is also firm with an excellent demand for export. Today's prices are:—Best Northumbrian steam, 8s. 6d. to 8s. 9d. per ton; second quality, 7s. 6d. to 7s. 9d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton. House- hold coals 10s. to 11s. per ton. Gas coals, quiet, 7s. 6d. to 8s. 3d. per ton. Coke, firm at 15s. to 16s. per ton.

New Companies.

Bridgwater Portland Cement Co., Ltd.—CAPITAL £10,000, in shares of £1. each. This company has been formed to acquire and carry on the business of T. Holden, and to trade as cement manufacturers. Registered office, West Quay, Bridgwater, Somerset. The subscribers to the memorandum of association are:—H. J. Major, Bridgwater, Somerset, brick manufacturer; C. Major, Bridgwater, Somerset, brick manufacturer; T. Holden, Bridgwater, Somerset, brick manufacturer; Mrs. T. Holden, Bridgwater, Somerset; W. T. Baker, Bridgwater, Somerset, solicitor; A. O. Major, Bridgwater, Somerset, clerk; H. W. Gibbs, Northumberland Buildings, Bath, solicitor.

Bateman's Cherub Soap Co., Ltd.—CAPITAL £10,000., in shares of £10. each. This company has been formed to take one of the soap works of J. T. Bateman at Bootle, and to carry on the business of soap

and glycerine manufacturers, oil refiners, etc. The subscribers to the memorandum of association are:—J. T. Bateman, Brookhill-road, Bootle, soap manufacturer; W. Sproat, 28, Chapel-street, Liverpool, shipowner; M. L. Hall, Chapel-street, Liverpool, merchant; J. Yates, 34, Castle-street, Liverpool, manager; T. M. Sproat, The Albany, Liverpool, cotton broker; T. Jones, 5, Hornby-place, Bootle, book-keeper; T. Sprout, 5, Castle-street, Liverpool, gentleman.

Cheshire Guano Co., Ltd.—CAPITAL £10,100, in shares of £1 each. This company has been formed to enter into an agreement with the Phospho-Guano Co., Ltd. (Seacombe), and its liquidators, and to manufacture and deal in guano and other fertilizers. The subscribers to the memorandum of association are:—A. G. Lefebvre, 22, Rue d'Aumale, Paris, merchant; L. R. Lefebvre, 5, Rue d'Aumale, Paris, merchant; R. M. G. F. Gripon, 22, Rue de Madrid, Paris, gentleman; Mrs. Z. Chardin, 25, Rue de Clichy, Paris; P. Prct, 55, Rue St. Anne, Paris, merchant; B. A. Duval, 4, Rue Racine, Paris, gentleman; C. A. H. McPherson, The Lodge, Brighton-le-Sands, Liverpool, retired captain.

New Aluminium Patents Syndicate, Ltd.—CAPITAL £30,000, in £1 shares. This company has been formed to acquire and work certain patents connected with the manufacture of aluminium. The subscribers to the memorandum of association are:—A. E. Kempen, 61, Rue de la Sablière, Becon, Seine, France; H. Griffiths, jun., Wellington-road, Handsworth, manufacturer; W. G. Ward, 104,

Belgrave-road, Birmingham, manager; W. T. Smedley, hall-street, Birmingham, chartered accountant; W. S. Newhall-street, Birmingham, chartered accountant; W. H. Brighton-road, Birmingham, clerk; G. E. Giller, 24, Wo road, Birmingham, clerk.

Petroleum Ltd.—CAPITAL £10,000, in £100 shares. Company has been formed to acquire and develop certain oil in Canada, the U.S.A., and elsewhere, and to enter into an agreement with the Colonial Development Corporation. The registered office, 224, Dashwood House, New Broad-street, E.C. The subscribers to the memorandum of association are:—H. C. J. Bunbury, B. Hall, Bury St. Edmunds; G. E. Bunbury, Little Gaddesdon, Reigate, gentleman; S. P. Ralli, 19, Sussex-square, W., gentleman; L. C. Walton, 123, Bishopsgate-street, E.C., secretary; C. I. Ashlea, Lower Edmonton, gentleman; E. T. Juniper, 75, street, E., gentleman; S. S. Briggs, 85, London-road, Clapton, gentleman.

Gazette Notices.

PARTNERSHIP DISSOLVED.

T. P. GARRETT and A. E. ATKINS, Chemists, Oil and Colour Merchants, Newport, under style of Garrett and Atkins.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending April 17th.

Acetic Acid—
Holland, 3 pks. Soundy & Sons
Belgium, 19 T. H. Lee
Holland, 16 Little & Johnston
" 20 F. J. Putz & Co.

Acetone—
Germany, 10 drs. Thames S. T. & L. Co.

Alkali—
Germany, 210 c. J. Barber & Co.

Antimony Ore—
Portugal, 50 t. J. Bamber

Asbestos—
Germany, 64 Craven & Co.

Barytes—
Holland, 37 cks. J. L. Lyon & Co.
" 52 Robertson, Selley & Co.

Belgium, 13 H. Keller & Co.
" 35 J. L. Lyon & Co.
" 25 bris. O'Hara & Hoar

Camphor—
Germany, 2 cs. T. H. Lee

Caoutchouc—
U. States, 15 c. Major & Field
E. Indies, 15 Wallace Bros.
B. Honduras, 15 A. Everingham & Co.

Holland, 1 Van Oppen & Co.
E. Indies, 1 L. & I. D. Jt. Co.
Natal, 27 " "
Portugal, 5 " "

Penang, 370 E. Boustead & Co.

Castor Oil—
France, 28 cks. L. & N. W. Rly. Co.
Italy, 30 cs. Barron, Harveys & Co.

Caustic Potash—
Germany, 83 drs. J. M. Steel & Co.

Chemicals (otherwise undeciphered)
Holland, 476 T. H. Lee
Belgium, 113 Société John Cockerill

Germany, 30 Petri Bros.
France, 29 Mory & Co.
Germany, 30 L. & I. D. Jt. Co.
Italy, 5 G. W. Wheatley & Co.

Germany, 247 T. H. Lee
" 240 A. & M. Zimmermann

Holland, 44 " "

Copper Sulphate—
Germany, 17 cks. Charles & Fox

Cream of Tartar—
Italy, 10 cks. Fellows, Morton & Co.

France, 2 McNamara & Co.
" 9 C. Atkins & Nisbet
" 20 H. Wallbaum & Tosetti
" 5 20 kgs. B. & F. Wf. Co.
Portugal, 10
France, 10 W. C. Bacon & Co.

Dextrine—
Germany, 19 bgs. M. D. Co.
" 200 J. Barber & Co.

Dyestuffs—
Argols
Italy, 24 cks. Thames S. T. & L. Co., Ltd.
" 7 Fellows, Morton & Co.

" 709 bgs. B. Jacob & Sons

Cutch
Borneo, 200 bks. L. & I. D. Jt. Co.
Singapore, 200 H. Johnson & Sons
Ceylon, 243 cs. Cayzer Irvine & Co.

Divi Divi
E. Indies, 350 bgs. Walker, Munie & Co.

Extracts
Germany, 200 bgs. T. H. Lee
U. States, 50 bks. W. Burton & Sons
A. Turkey, 4 pks. M. D. Co.

Germany, 2 bris. Butler's Wf., Ltd.
Belgium, 10 cks. T. H. Lee
" 8 M. D. Co.

Denmark, 2 W. & S. Bowditch
U. States, 100 bks. G. R. Haller
Singapore, 430 bgs. L. & I. D. Jt. Co.

Indigo
E. Indies, 5 cts. Williams, Torrey & Co.

" 15 A. B. Curtis & Co.
" 178 P. & O. Co.
" 288 Ross & Deering

" 65 Lewis & Peat
" 51 Parsons & Keith
" 108 J. Finlay & Co.

" 53 Elkan & Co.
" 3 Parry & Co.
" 5 Croysdale & Co.

" 26 P. Macphaden & Co.
" 43 Binny & Co.
" 16 R. Von Glehn & Sons

" 9 Arbuthnot, Latham & Co.
" 5 H. J. Perlbach & Co.
" 20 F. Claydon & Co.
" 174 L. & I. D. Jt. Co.

Logwood
B. W. I., 27 t. G. T. Benton & Son

B. Honduras, 176 Sollas & Sons

Myrabolams
E. Indies, 616 bgs. Dalton & Young

Orchella
Germany, 25 bls. Prop. Bull Wf.

Saffron
Spain, 1 cs. Richardson, Spence & Co.

Shumac
Italy, 200 bgs. H. Johnson & Sons

Tanners' Bark
Natal, 3 t. Flack, Chandler & Co.
Adelaide, 35 Baxter & Hoare
Natal, 43 A. & W. Nesbitt

Valonia
A. Turkey, 125 t. Hicks, Nash & Co.
" 20 A. J. Humphery
" 50 F. Claydon & Co.
" 20 Boucher, Mortimer & Co.

E. Turkey, 10 c. L. & I. D. Jt. Co.

Farina—
Holland, 125 bgs. J. Knill & Co.
Germany, 50 R. Bennett & Co.

Glucose—
U. States, 2,000 pks. 2,000 c. Robinson, Son & Co.
" 500 500 Harrison & Burton

" 500 500 Bellamy's Whf. Co.
" 500 500 J. Budgett & Son

Germany, 20 22 Colthurst & Harding
U. States, 250 250 Trier, Meyer & Co.

" 250 250 London
" 30 312 Glucose Co. Williams, Torrey & Co.

" 50 290 Thames S. T. & L. Co.
" 50 300 C. Southwell

Germany, 25 200 Seaward Bros.
U. States, 2,997 2,997 M. D. Co.
" 302 500 E. Thompson & Co.

" 800 800 Ohlenschlager Bros.
" 1,355 4,470 Fellows, Morton & Co.
" R. G. Hall & Co.

Glue—
Holland, 4250 L. & N. W. Rly. Co.
France, 75 J. Harrison
Denmark, 12 Tegner, Price & Co.

Germany, 100 Phillips & Graves
Belgium, 150 J. Barber & Co.
U. States, 46 Armour & Co.
Holland, 60 Hermann, Koller & Co.

Infusorial Earth—
Germany, 50 t. A. H.

Iron Oxide—
Persia Gulf, 110 t.

Lamp Black—
U. States, 130 hds.

Manure—
Germany, 50 t. F. W.

E. Indies, 361 Fix,
Germany, 100 Union
Belgium, 125 Anglo-Ecos

Methyl Alcohol—
Germany, 14 dms. Sutt
France, 5 cks. W

Mica—
E. Indies, 4720 W. M. S.
" 50 Blyth, Gm
" 250 Weigh

Mineral White—
France, 100 bgs. Stob

Molasses—
Holland, 15 cks. 60 c.

U. States, 250 1,500

Ochre—
France, 64 lds.
Spain, 21 N. V. Robb
Holland, 87 Heming

" 16 pks. 1 cs.

France, 159 cks. W. Hart

Paint—
U. States, 15 cs. Lamb
" 50 Da

Phosphate Rock—
Belgium, 85 t. Anglo-Cont
" 100 E. G.
" 25 West

Pitch—
Germany, 10 bris. Poch H

Plumbago—
Ceylon, 360 cks. Vid
Italy, 61 J. Thru

Ceylon, 208

Germany, 5 bgs. Brit. Am

Ceylon, 170 cks. Dond

Potassium Bicarbonate—
Land, 5 kgs. A. & M. Zimmermann

Potassium Carbonate—
ance, 132 c. J. A. Reid

Potassium Chloride—
many, 250 bgs. F. W. Berk & Co.

Potassium Oxalate—
land, 50 bgs. F. Boehm

Potassium Oxymuriate—
eden, 65 pks. G. Boor & Co.

Potassium Permanganate—
land, 10 cks. G. Rahn & Co.

Potassium Sulphate—
many, 501 bgs. Anglo-Contl. G. Wks.

Silver—
ain, 5,000 flaks. N. M. Rothschild & Sons

in—
States, 4,531 brls. H. Hill & Sons
3,762 T. Nickels & Co.

petre—
Indies, 7,764 bgs. Lucas & Spencer's Wf.

um Acetate—
dces, 104 cs. J. Harrison

um Sulphate—
land, 30 cks. H. Wallace & Co.

ch—
States, 125 sks. Williams, Torrey & Co.
T. H. Lee
gum, 200 cs. Becker & Wagner
310 C. Tennant, Sons, & Co.
120
25 pks. Hammond & Co.
100 cs. Leach & Co.
land, 195 T. H. Lee
1,346 Little & Johnston
30 Phillips & Graves
many, 27 J. Hall, Junr., & Co.
398 F. Clayton & Co.
nce, 200 pks. Prprs. Dowgate Dk.

hur—
y, 10 L. F. Smith
5 J. Puddy & Co.
6 J. Kirchin
20 Union L. Co.

hur Chloride—
land, 20 pks. Typke & King

arie Acid—
land, 3 cks. Kirkpatrick & Co.
14 pks. B. & F. Wf. Co.
20 F. C. Devon & Co.

amarine—
gum, 30 cs. Union L. Co., Ltd.
land, 5 Hernu, Peron, & Co.
gum, 9 pks. W. Harrison & Co.

ish—
many, 14 pks. H. Lambert
land, 1 Phillips & Graves
ates, 2 Staveley & Starr

e Lead—
land, 57 cks. F. G. Clifford
gum, 43 J. L. Lyon & Co.
10 brls. Burrell & Co.
18 cks. Perkins & Homer
land, 20

i Pulp—
den, 3 pks. H. Lambert
160 Henderson, Craig, & Co.

um, 1,772
way, 560 Becker & Wagner
many, 25 W. G. Taylor & Co.
land, 101 Thames S. T. & L. Co.
150 C. S. Lovell
39 E. J. & W. Goldsmith
Rosenberg, Loewe, & Co.

den, 134
802 C. S. Lovell
way, 309 W. E. Bott & Co.

um, 640
way, 772 Christophersen, Andrews, & Co.
many, 15 Moreton Cox Bns.
den, 520 E. J. & W. Goldsmith
2,243 Tough & Henderson
way, 430 Becker & Co.
1,600 J. Sharp
many, 203 W. Friedlaender
ogal, 650 E. J. & W. Goldsmith
300 Tough & Henderson

Oxide—
and, 131 brls. M. Ashby, Ld.
am, 10 cks. Ross & Deering
many, 50 D. Storer & Sons

LIVERPOOL.

Period ending April 15th.

Acetate of Lime—
New York, 1,425 bgs.

Acetic Acid—
Rotterdam, 10 balloons

Aluminous Cake—
Rotterdam, 85 cks.

Antimony Fluoride—
Bremen, 2 cks.

Barytes—
Rotterdam, 74 cks.

Boracite—
Panderma, 510 t.

Cod Oil—
Hamburg, 1 cs.

Chemicals—
Hamburg, 2 brls.

Colours—
Bremen, 20 cks.

Cottonseed Oil—
New York, 100 brls.

Cream of Tartar—
Bordeaux, 55 cks.
Oporto, 5 Sachse & Klemm

Dyestuffs—
Argols Oporto, 46 cks.
Cochineal Las Palmas, 14 bgs. Kolf, Kulheim & Co.

Cuteh—
Rangoon, 4,150 bxs.
Singapore, 69t

Divi Divi—
New York, 500 bgs. A. Dobell & Co.

Extracts—
Hamburg, 5 cs.

Logwood—
Laguna, 412 quintals

Valonia—
Dragonesta, 735 bgs. Papayanni & Jeremias

Smyrna, 681 L. Oppenheim
151 t. G. Essayan & Co.

Syria, 5,284 170

Gelatine—
Bordeaux, 1 cs.

Glucose—
New York, 500 brls. T. M. Duche & Sons

Glue—
Fiume, 200 bgs. Kolli & Sankey

Rotterdam, 240 7 cks.

Manganese Ore—
Yokohama, 300 t.

Mica—
New York, 16 brls.

Molasses—
Alexandria, 980 brls.

Paint—
New York, 3 cs. International Fibre Co.

Amsterdam, 10 brls.
London, 7 dms.

Paraffin Scale—
New York, 500 brls. Thompson & Bedford

Potash—
Hamburg, 10 cks.
Rouen, 99
Rotterdam, 10

Rosin—
Boston, 500 brls.

Saltpetre—
Calcutta, 658 bgs. Ralli Bns.

Soap—
Boston, 5 cs.
New York, 200 bxs
New Orleans, 120 brls.
Smyrna, 5

Soapstone—
Genoa, 300 bgs. W. Harrison & Co.

Starch—
Newport News, 100 bgs.
New York, 100 300 sks.
Fiume, 102 Haefner Hilpert

Tartaric Acid—
Rotterdam, 2 cs.

Ultramarine—
Bremen, 4 cks.

Varnish—

New York, 1 brl. International Fibre Co.

Wood Pulp—

Drammen, 30 cs. L. S. Dixon & Co.
Boston, 360 bds. 82 crts. Spicer Bns. Ld.

Zinc Oxide—

Hamburg, 278 bls.
5 cks.
Rotterdam, 198 cks.

MANCHESTER.

Week ending April 17th.

Acetate of Lime—
New York, 1,404 bgs.

Acetic Acid—
Ghent, 10 brls.

Alumina—
Rotterdam, 15 cks.

Aluminous Cake—
Rotterdam, 115 cks.

Aniline Colours—
Rotterdam, 30 cks. 4 cs. 44 brls.
3 bxs.

Antimony Oxide—
Antwerp, 1 ck.
Rotterdam, 1

Antimony Salts—
Rotterdam, 10 cks.

Asbestos—
Rotterdam, 3 crts.

Barytes—
Hamburg, 40 cks.
Antwerp, 150 bgs.

Bleaching Powder—
Treport, 40 cs.

Chemicals (otherwise undescribed)—
Rouen, 22 cks.
Hamburg, 10
Rotterdam, 51

Chromium Acetate—
Rotterdam, 3 brls.

Colours—
Rotterdam, 18 cks. 31 cs. 43 brls.
12 bxs.

Boulogne, 9
Ghent, 2
Antwerp, 2

Dyestuffs—
Alizarine Rotterdam, 51 cks. 2 cs. 55 brls.
6 bxs.

Logwood—
Black River, 527 t.
Laguna De Terminos, 350 D. Midgeley & Sons

Shumac—
Rotterdam, 4 cks.

Farina—
Hamburg, 200 bgs.

Glucose—
Stettin, 94 cks. Stott, Coker, & Co.

Treport, 300 bgs.
Rotterdam, 10 cks.
New York, 250 brls.

Glue—
Rouen, 35 cks. 40 bls.
Hamburg, 5
Stettin, 2 bgs.
Treport, 50
Rotterdam, 35
Antwerp, 3 pks.

Infusorial Earth—
Hamburg, 7 bgs.

Lead Acetate—
Hamburg, 13 cks.

Limestone—
Antwerp, 3 crts.

Lithopone—
Rotterdam, 8 cs.

Naphtha—
Antwerp, 9 pks.

Naphthol—
Rotterdam, 4 cks.

Ochre—
Treport, 26 cks.

Oxalic Acid—
Rotterdam, 25 cks.

Paint—
New York, 10 hf. brls.

Paraffin Scale—

New York, 930 brls. Anglo-American Oil Co.

Potash—

Treport, 9 cks.
Rotterdam, 15

Potassium Carbonate—

Stettin, 39 cks. Stott, Coker, & Co.

Potassium Chloride—

Hamburg, 15 cks.

Potassium Permanganate—

Hamburg, 4 cks.

Potassium Prussiate—

Rotterdam, 2 cks.

Sodium Acetate—

Treport, 41 cks.
Rouen, 8

Starch—

Stettin, 1,800 bgs. Stott, Coker, & Co.
Rotterdam, 190 cs.
New York, 1,864

Tartar—

Rotterdam, 2 cks.

Tartaric Acid—

Rotterdam, 23 cks. 15 kgs.

Waste Salt—

Hamburg, 600 bgs.

White Lead—

Antwerp, 5 cks.

Wood Pulp—

New York, 408 bds. Christie & Co.

Zinc Ashes—

Antwerp, 19 cks.

Zinc Oxide—

Hamburg, 25 cks.
Rotterdam, 120 brls.

HULL.

Week ending April 17th.

Arsenic—
Hamburg, 10 brls. Wilson, Sons, & Co., Ld.

Barytes—
Bremen, 19 cks. G. Holmes & Co.

Rotterdam, 65
Antwerp, 95 Hutchinson & Son
Amsterdam, 34 H. F. Pudsey
50 W. & C. L. Ringrose

Bone Meal—
Kurrachee, 5,000 bgs.
Bombay, 2,000

Chemicals (otherwise undescribed)—
Rotterdam, 4 cs. Hutchinson & Son
Gothenburg, 12 cks. Wilson, Sons, & Co., Ld.

Hamburg, 18
Antwerp, 33 pks. "

Cod Oil—
Drontheim, 10 brls. Wilson, Sons, & Co., Ld.

Christiansund, 60
Aalesund, 127
Bergen, 278
Christiania, 250
Hamburg, 15 cks. J. Deheer & Son

Colours—
Rotterdam, 6 cks. W. & C. L.
2 cs. Ringrose
Bremen, 10 cks. Veltmann & Co.
Hamburg, 1 cs. Wilson, Sons, & Co., Ld.

Bremen, 3
Antwerp, 4 A. Sanderson & Co.
8 Wilson, Sons, & Co., Ld.
Stettin, 43 pks. Stott, Coker, & Co.
20 cks. "

Cottonseed Oil—
New York, 350 brls. Wilson, Sons, & Co., Ld.

Cryolite—
Copenhagen, 6 cks. Wilson, Sons, & Co., Ld.

Dyestuffs—
Alizarine Rotterdam, 7 cks. W. & C. L. Ringrose

Logwood—
Hamburg, 25 bgs. Wilson, Sons, & Co., Ld.

Wadder—
Rotterdam, 1 ck. Hutchinson & Son

Myrabolams—
Bombay, 17,173 bgs.

Farina—		
Stettin,	248 bgs.	Wilson, Sons, & Co., Ld.
Harlingen,	350	W. & C. L. Ringrose
Hamburg,	25	White & Son
Harlingen,	150 bls.	Hutchinson & Son
Glucose—		
New York,	100 brls.	
Glue—		
Amsterdam,	100 bgs.	W. & C. L. Ringrose
Stettin,	1	Wilson, Sons, & Co., Ld.
Rouen,	4 cks.	Rawson & Robinson
Dunkirk,	42 bls.	Wilson, Sons, & Co., Ld.
Bremen,	12 cs.	"
Lead Acetate—		
Stettin,	35 cks.	Wilson, Sons, & Co., Ld.
Minium—		
Rotterdam,	20 cks.	Hutchinson & Son
Ochre—		
Rouen,	30 cks.	Rawson & Robinson
Paint—		
Christiania,	1 cs.	Wilson, Sons, & Co., Ld.
New York,	130	"
Pitch—		
Hamburg,	30 brls.	Wilson, Sons, & Co., Ld.
Potash—		
Antwerp,	5 dms.	Wilson, Sons, & Co., Ld.
Rosin—		
Hamburg,	10 brls.	Wilson, Sons, & Co., Ld.
Salt—		
Bremen,	8 cks.	Veltmann & Co.
Saltpetre—		
Hamburg,	200 kgs.	Wilson, Sons, & Co., Ld.
Soap—		
New York,	750 pks.	
Antwerp,	1 cs.	Wilson, Sons, & Co., Ld.
Starch—		
Amsterdam,	40 cs.	Hutchinson & Son
Ghent,	106	
Antwerp,	70	Bailey & Leetham, Ld.
Bremen,	2,055	Veltmann & Co.
New York,	200 bgs.	
Amsterdam,	90	W. & C. L. Ringrose
Antwerp,	120	Wilson, Sons, & Co., Ld.
Stearine—		
Aalesund,	9 brls.	
Bergen,	60 cks.	
Antwerp,	25 bgs.	Wilson, Sons, & Co., Ld.
Tallow—		
New York,	120 cks.	Wilson, Sons, & Co., Ld.
Treacle—		
Stettin,	10 cks.	Wilson, Sons, & Co., Ld.
New York,	650 brls.	"

Ultramarine—		
Rotterdam,	7 cks.	Hutchinson & Son
Waste Salt—		
Hamburg,	2,450 bgs.	
White Lead—		
Rotterdam,	33 cks.	Hutchinson & Son
Antwerp,	70	Bailey & Leetham, Ld.
Amsterdam,	35	W. & C. L. Ringrose
Wood Pulp—		
Stettin,	280 pks.	Wilson, Sons, & Co., Ld.
Drontheim,	320	"
Christiania,	60	880 pks. "
Gothenburg,	50	388 "
Zinc Sulphate—		
Gothenburg,	20 bgs.	Wilson, Sons, & Co., Ld.
Zinc White—		
Antwerp,	1 ck.	Bailey & Leetham, Ld.

GLASGOW.

Week ending April 22nd.

Acetate of Lime—		
New York,	881 bgs.	
Acetic Acid—		
Rotterdam,	15 cks.	J. Rankine & Son
Antimony Sulphide—		
Hamburg,	1 ck.	
Arachide Oil—		
Rotterdam,	2 cks.	J. Rankine & Son
Asbestos—		
Genoa,	7 pks. 1 cs. 60 bls.	
Barium Sulphate—		
Antwerp,	500 bgs.	
Bone Meal—		
Iceland,	454 sks.	
Bromine—		
Hamburg,	4 cs.	
Chemicals (otherwise undescr.)		
Rotterdam,	2 cs.	J. Rankine & Son
Colours—		
Rotterdam,	8 cks. 82 pks. 20 brls. 2 bxs.	J. Rankine & Son
Hamburg,	1 cs. 11 cks.	
Cottonseed Oil—		
New York,	55 brls.	
Dyestuffs—		
Alizarine		
Rotterdam,	1 bx. 63 brls.	J. Rankine & Son
Aniline		
Rotterdam,	4 cks. 1 cs. 12 bxs. 41 brls.	J. Rankine & Son
Logwood		
Black River, Ja.,	468 t.	Mucklow & Co.
Madder		
Rotterdam,	10 cks.	J. Rankine & Son
Shumac		
Palermo,	280 bgs.	
Glucose—		
New York,	250 brls.	

Glue—		
Antwerp,	5 brls.	
Naples,	100 bgs.	
Ochre—		
Baltimore,	385 brls.	
Oxalic Acid—		
Rotterdam,	6 cks.	J. Rankine & Son
Phosphorus—		
Baltimore,	5 cs.	
Potash—		
Rotterdam,	43 cks.	J. Rankine & Son
Potassium Nitrate—		
Hamburg,	50 cks.	
Rosin—		
New York,	910 brls.	
Soap—		
Naples,	74 cs.	
Newport News,	266 brls.	Wm. T. Gedde
New York,	12 pks.	
Sodium Sulphate—		
Antwerp,	6 cks.	
Starch—		
Baltimore,	1,320 sks.	
Antwerp,	80 cs.	
New York,	550 bgs.	
Sulphur—		
Catania,	63 cks. 311 bgs. 20 brls.	
Ultramarine—		
Rotterdam,	3 cs. 4 cks. J. Rankine & Son	
Yarnish—		
Antwerp,	1 ck. 4 tins	
New York,	29 brls. 5 cs.	
Waste Salt—		
Hamburg,	152 t. 280 cks.	
White Lead—		
Rotterdam,	90 cks.	J. Rankine & Son
Wood Pulp—		
Christiania,	369 bls.	
Rotterdam,	51	J. Rankine & Son
Zinc White—		
Rotterdam,	60 cks.	J. Rankine & Son

TYNE.

Week ending April 17th.

Cod Oil—		
Bergen,	10 brls.	
Glucose—		
New York,	300 brls.	Furness, Withy, & Co.
Paint—		
Christiania,	3 cs.	
Phosphate—		
Boma,	550 t.	Blaydon Manure Alkali Co.
Quicksilver—		
Copenhagen,	100 cyldrs.	
Yarnish—		
New York,	1 brl.	Furness, Withy, & Co.
Wood Pulp—		
Gothenburg,	120 pks.	
Christiania,	1,400 bls.	
Laurvig,	250	

GOOLE.

Week ending April 14th.

Alizarine—		
Rotterdam,	86 brls.	
Alkali—		
Calais,	1 ck.	
Antimony—		
Boulogne,	1 ck.	
Barytes—		
Antwerp,	900 bgs.	
Caoutchouc—		
Boulogne,	11 cks.	
Colours—		
Hamburg,	5 cks.	
Dyestuffs (otherwise undescr.)		
Boulogne,	2 cks. 2 cs. 27 p	
Rotterdam,	450 116	
Amsterdam,	4	
Farina—		
Hamburg,	800 bgs.	
Glucose—		
Calais,	100 bgs.	
Glue—		
Boulogne,	1 p	
Ochre—		
Calais,	74 cks.	
Potash—		
Dunkirk,	23 cks. 31 d	
Calais,	1	
Saltpetre—		
Rotterdam,	100 bgs.	
Soap—		
Boulogne,	1 cs.	
Starch—		
Ghent,	54 cs.	
Stearine—		
Rotterdam,	3 cks.	
Antwerp,	25 bgs.	
Yarnish—		
Rotterdam,	7 cks.	
Waste Salt—		
Hamburg,	994 cks. 100 t.	
500 bgs.		
Wood Pulp—		
Hamburg,	200 p	

GRIMSBY.

Week ending April 17th.

Caoutchouc—		
Rotterdam,	1 cs.	
Chemicals (otherwise undescr.)		
Hamburg,	6 cks. 7 p	
Antwerp,	9	
Rotterdam,	14	
Colours—		
Hamburg,	103 cks. 1 cs. 32 p	
Rotterdam,	1	
Antwerp,	5 30 23	
Farina—		
Hamburg,	100 bgs.	
Glue—		
Dieppe,	20 cks.	
Wood Pulp—		
Malmo,	120 bls.	

EXPORTS OF CHEMICAL PRODUCTS
OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending April 21st.

Acids—		
Natal,	2 cks.	£18
Mauritius,	33 pks.	19
Alkali—		
New York,	1 t.	£15
Fremautle,	2 6 c.	5
Alum—		
Delagoa Bay,	5 t. 6 c.	£28
Ammonia—		
Rotterdam,	30 dms.	£85
Ammonium Carbonate—		
Lyttelton,	5 c.	£7

Rotterdam,	5 cs.	10
B. Ayres,	1 t.	28
Bordeaux,	10 cks.	42
Ammonium Sulphate—		
Ostend,	50 t. 9 c.	£450
Trinidad,	51 7	425
Dunkirk,	28 10	220
Granville,	30 10	255
Antwerp,	160	1,280
Harbadoes,	115	920
New York,	60	430
Cette,	200	1,450
Rotterdam,	100	795
Hamburg,	50	420
Bremen,	52	400
Anhydrous Ammonia—		
Antwerp,	6 cyldrs.	£27

Boracic Acid—		
Brisbane,	10 kgs.	£17
Borax—		
Natal,	3 cs.	£9
Rotterdam,	10 cks.	21
Calcium Phosphate—		
Melbourne,	2 cs.	£15
Carbolic Acid—		
Philadelphia,	7 cs.	£75
Treport,	25 brls.	60
Boston,	3 cks.	58
New York,	11	94
Cologne,	26	123
Bombay,	25 dms.	30

Carbon Bisulphide—		
N. Orleans,	8 dms.	
Caustic Soda—		
Wanganui,	5 t. 1 c.	
Brisbane,	16	
Canterbury,	20 3	
Chemicals (otherwise undescr.)		
Stettin,	3 cks.	
Dunkirk,	16	
Treport,	5	
New York,	89	
Brussels,	5 pks.	
Cape Town,	11	
Natal,	11	
Christiania,	3	
Karachi,	2	
Sydney,	26	
Boston,	2	

Acid—			
am,	10	20 kgs.	115
arg,	1 ckl.		613
elm,	1 t.		333
ork,	6		660
le,			29
dam,		5	30
o,		3	7
ury,		2	12
		1	6
3 brls.			122
1 ckl.			355
		5	28
lam,	7 cks.		75
Products—			
rine			
	4 cs.		215
ino	25 cks.		63
	1 cs.		61
le,	1		10
line Oil			
lam,	12 dms.		500
ne Salts			
ork,	34 cks.		220
racene			
lam,	1,200 brls.		2,168
ol			
lam,	190 cks.		959
note			
rt News,	500 cks.		123
note Oil			338
don,	40 tanks.		60
note Salts			
th,	493 bgs.		100
itha			
rne,	5 dms.		65
ork,	30	5 cks.	10
	56 brls.		310
thalline			210
	5 cs.	26 cks.	120 bgs.
ork,	262	170	393
thalline Salts			
rg,	1,425 bgs.		400
	12 brls.		611
d'			
ne,	831 t.		935
am,	1,175		2,069
		17 cks.	40
rt News,		37	90
		475	415
		500	234
en,	249		280
rg,		5	13
cent,		3 cs.	9
tic,		11	8
p,	460		550
ork,	60		80
fine			
	12 brls.		6140
	250 dms.		612
e,	50		10
abeth,	400		12
ol	500 brls.		90
rg,	43 cks.		6216
Products—			
ork,	50 dms.		68
	300 cks.		195
	25 brls.		26
Sulphate—			
	11 C.		610
	15 t.	7	285
of Tartar—			
e,	1 t.		678
rne,	1		94
e,		10 C.	39
stants—			
rne,	800 dms.	100 cks.	50 kgs.
			6765
		4 cs.	10
	56		12
ura,		10	20
abeth,		40	18
		5	35
e,	12		12
p,	2,200	2	207
Blood—			
ork,	2 t.		6150
		10 C.	64
oes,	175		1,488
s,	12		111
	5		46
hloric Acid—			
pre,	13 cs.		61

Verne

Amure			
Uderingen,	30 t.	5 c.	£107
Natal,	80		490
Demerara,	15		120
Madeira,		11	16
Myrbane			
Brussels,	20 dms.		£36
New York,	50		103
Sydney,	20 cs.		73
Nitric Acid			
Pt. Elizabeth,	6 cs.		£14
Oxygen Gas			
B. Ayres,	2 cs.		£80
Amsterdam,	1		35
Phosphorus			
Brussels,	10 cs.		£10
Sydney,		5 c.	48
Potash			
Rotterdam,	1 ck.		£24
Potash Crystals			
Montreal,	12 pks.		£110
Brussels,	3 cs.		28
Potassium Bicarbonate			
Philadelphia,	12 c.		£16
B. Ayres,	1 t.		8
Potassium Bichromate			
B. Ayres,	14 c.		£30
Lisbon,	8		18
Potassium Chlorate			
B. Ayres,	1 t. 19 c.		£70
New York,	15		572
Potassium Cyanide			
Melbourne,	3 t.		£304
Townsville,	1 10 c.		130
Potassium Permanganate			
Calcutta,	14 c.		£60
Bombay,	5		18
Potassium Prussiate			
Stettin,	3 cks.		£47
Lisbon,	10 c.		26
Boston,	17		242
Brussels,	2		23
Genoa,	2		40
Saltpetre			
B. Ayres,	14 c.		£16
Sydney,	2 t.		42
Melbourne,	2		41
Rio de Janeiro,	2 19		63
Hamburg,	11		12
Newcastle,	10		10
Brisbane,	2 10		54
Sheep Dip			
Natal,	14 t. 15 c.		£268
Townsville,	2		5
Soda			
Rotterdam,	5 t.		£30
Soda Crystals			
Newcastle,	22 t. 8 c.		£51
Soda Salts			
New York,	8 t. 12 c.		£110
Sodium Bicarbonate			
Natal,	1 t. 15 c.		£30
Alexandria,	1 4		6
Sodium Nitrate			
Antigua,	10 t. 6 c.		£86
St. Kitts,	6 2		52
Sodium Prussiate			
Boston,	20 t. 13 c.		£735
Sodium Sulphate			
Ghent,	100 t.		£190
Sulphur			
Cape Town,	300 cks.		£264
Mauritius,	50 t.		282
Trinidad,		15 c.	7
Sulphuric Acid			
Natal,	5 t. 16 c. 25 cs.		£39
Pt. Elizabeth,		20	15
Superphosphates			
Barbadoes,	85 t.		£255
Tartaric Acid			
Lyttelton,		2 c.	£71
Galatz,			67
Braila,	3 cs.	1 brl.	58
Boulogne,	1	5	35
Sydney,		3	18
Canterbury,		2	12
Cape Town,		2	12
Melbourne,	3		33

LIVERPOOL.

Period ending April 21st.

Ammonia—

New York,	5 t.	1 c.	3 q.	£120
Ammonium Carbonate—				
Portland,		10 c.		£14
Bordeaux,	1 t.			30
Genoa,	1			30
Hamburg,	1 ck.			6
Ammonium Chloride—				
Hamburg,		5 c.	3 q.	£8
Smyrna,		6		10
Tripoli,		5		9
Trieste,	1 t.			32
Beyrout,		1	10	49
Genoa,		10		10
Hioho,	2	10		46
Antwerp,		18		21
Naples,		10		17
Galatz,		8		1
Valparaiso,		3		1
Odessa,	4	16	1	37
Ammonium Sulphate—				
Honolulu,	25 t.	9 c.	1 q.	£195
Almeria,	2	13		20
Sourabaya,	275			2,065
Pekalongan,	220			1,650
Samarang,	45			460
Valencia,	282	14	3	2,400
Las Palmas,	20			160
Palermo,	12	3	1	97
Leghorn,	20	1	2	165
Odessa,	1		3	8
Anthracene—				
Rotterdam,	10 t.	10 c.		£170
Bleaching Powder—				
Baltimore,	107 cks.	50 bxs.		
Bilbao,	14		20	8 cs.
Bombay,				
Bordeaux,	29			
Boston,	767			
Genoa,	126			
Ghent,	74			
Leghorn,	30			
Lisbon,	14			
Manila,			6	
Montreal,	23			
Nantes,	32			
Newport News,	181			
New York,	235		52 brls.	
Passages,	7			
Philadelphia,	302			
Rouen,	101			
San Sebastian,	60			
Seville,	20			
Vera Cruz,	7			
Boric Acid—				
Yokohama,	2 t.			£60
Rotterdam,	3	2 c.	3 q.	84
Borax—				
Yokohama,	2 t.	19 c.	2 q.	£60
Antwerp,	2	16		56
Hamburg,	2	13	2	55
Rotterdam,	17	3		313
Quebec,	3	7	3	59
Montreal,	1	16		32
Stockholm,	12	4		234
Lisbon,	1			20
Carbolic Acid—				
Baltimore,	5 t.		1 q.	£202
Philadelphia,	1	13 c.		193
Cadiz,		2	3	15
Calcutta,	2			40
New York,	20	12	2	1,772
Barcelona,	2	19		142
Rouen,	1	2	2	59
Caustic Potash—				
Baltimore,	5 t.	2 c.		£140
New York,	15	17		400
Caustic Soda—				
Alexandria,	107 dms.			
Algoa Bay,		8 cs.		
Amsterdam,	24			
Bahia,	45			
Baltimore,	675	125 pks.	15 bxs.	
Barcelona,	30		27 cks.	
Bilbao,	124			
Bordeaux,	172			
Boston,	250			
Catania,	15			
Calcutta,	24			
Dunedin,	49			
E. London,	15			
Fairwater,	35			
Galatz,	110			
Genoa,	488			
Hamburg,	470			
Havana,	13			
Hioho,	100			
Kingston,	18			
Leghorn,	34			
Madeira,	45			
Malaga,		34		

Manaos,

Marseilles,	72		
Melbourne,	39		
Naples,	79		
N. Orleans,	50		
New York,	575	100	100 brls.
Para,	30		
Pasages,	8		
Penang,	70		
Philadelphia,	1,547		
Pimental,	12		
Pisco,	30		
Puerto Cabello,	16		
Quebec,	170		
Rangoon,	10		
Rouen,	75		
St. Nazaire,	12		
Samarang,	9		
Santos,	70		
San Sebastian,	60		30 cks.
Sanavilla,	10		
Seville,	174		
Smyrna,	10		
Sydney,	49		
Talcahuano,	30		
Valparaiso,	7		
Wellington,	39		
Vigo,	30		
Chemicals (otherwise undcs.)—			
Antwerp,		6 c.	£9
Hamburg,	2 t.	2	123
Boston,	167	6	584
New York,	30	15	1,202
Philadelphia,	25	5	731
Calcutta,	111	13	302
Genoa,	1		32
China Clay—			
Barcelona,		50 cks.	500 bgs.
Boston,	1,567		
Calcutta,	176		
Montreal,	360		
New York,	350		
Philadelphia,	80		
Portland, M.,	1,827		
Portland, O.,	200		
Rio de Janeiro,			
Chromium Oxide—			
Antwerp,		2 c.	£13
Citric Acid—			
Barcelona,		4 c.	£22
Coal Products—			
Alizarine			
Sydney,		3 cks.	
Aniline			
Christiania,		1 dm.	
Alizarine Colours			
Boston,		3 cs.	
Aniline Salts			
New York,		5 cks.	
St. Nazaire,		20	
Smyrna,		10	
Anthracene			
Rotterdam,		22 cks.	
Cresote Oil			
Lisbon,		375 brls.	
Naphtha			
Trinidad,		1 ck.	
Naphthol Colours			
New York,		5 cs.	
Pitch			
La Rochelle,		649 t.	
Rouen,		2 cks.	
Valparaiso,		10 brls.	
Tar			
Cape Lopez,		6 brls.	
Conakry,		20 cks.	
Galatz,		311	
Ibrail,		110	
Philadelphia,		300	
Sherb-o,		20	
Sierra Leone,		20 kgs.	
Copper Sulphate—			
Constantinople,	3 t.	12 c.	1 q. £60
Tarragona,	4	19	1
Talcahuano,	1	15	
Newfairwater,	3	19	
P. Alegre,	2	10	
Barcelona,	4	18	1
Genoa,	10 t.		
Naples,	10 f.		
Newcastle,	1		
Amsterdam,	4	19	3
Reval,	4	19	1
Konigsberg,		10	
Smyrna,		10	
Algiers,	25		
Venice,	160	12	3
Leghorn,	203	15	3
Rotterdam,	17	3	2
Naples	152	11	1
Trieste,	64	8	2
Genoa,	312	4	3
Paris,	10	1	2
Lisbon,	84	10	1

Nantes,	93	3	1	1,376
Bordeaux,	967	4	1	16,675
Oporto,	3	1		46
Brindisi,	3	6		14
Antwerp,	5	3	3	81
Batoum,	1			16
Rouen,	96	10	1	1,687
Messina,	15	16	2	232
Marseilles,	35	2	3	621
Ancona,	53	8	1	876
Palermo,	5			81
Bari,	117	6		1,861
Fiume,	11	3	2	182

Disinfectants—

Cadiz,	9 c.			£39
--------	------	--	--	-----

Dried Blood—

Rouen,	35 l.	7 c.	3 q.	£283
Boston,	2	8		68

Gelatine—

Boston,	2 t.	8 c.		£1,047
---------	------	------	--	--------

Guano—

Malaga,	19 l.	14 c.		£135
---------	-------	-------	--	------

Iron Oxide—

Genoa,	6 l.	7 c.		£45
--------	------	------	--	-----

Lime—

Lagos,	2 l.	7 c.		£6
Monrovia,	3			6

Magnesia—

Havre,	99 cs.			12 cks.
Vera Cruz,	12 cks.			

Magnesium Sulphate—

Punta Arenas,	4 cs.			
---------------	-------	--	--	--

Manure—

Las Palmas,	5 t.	1 c.		£40
Marseilles,	25	1	9 q.	137
Bordeaux,	25	13		142
Rouen,	2			14
Teneriffe,	10			100
Ghent,	19	7		24

Oxalic Acid—

Boston,	6 l.	12 c.	1 q.	£188
---------	------	-------	------	------

Paint—

Ambriz,	63 kgs.			
Belize,	15 cks.	339		
Benguela,	2			1 cs.
Boma,	2			
Bonny,	2			
Cabenda,	20			
Cape Town,	2			
Cavite,	45 dms.	7		
Cienfuegos,	1			
Colon,	5	75	15	
Curacao,	10			
Demerara,	13			
Fernando, Po,	8			
Fiume,	52 dms.	26		100 bgs.
Hamburg,	1			
Havana,	25			
Lagos,	49	112 pks.	40	2 cs.
Lisbon,	22			
Loando,	2 cks.	50		1
Manaos,	10 bks.	3		
Manila,	12	130		
Matadi,	2			
Melbourne,	5			
Mollen'o,	5			
Montreal,	3	35		
Mossamedes,	50			
Newport News,	20			
N. York, 6 dms.	48			5
Para,	18 bks.			4
Punta Arenas,	4	350		3 brls.
St. Nazaire,	4			
St. Thomas,	100			
San Jose de				
Guatemala,	45			
Santos,	4	216		
Sierra Leone,	80			
Smyrna,	120			93 cs.
Tampico,				14
Talcabano,				
Trieste,	12			
Valparaiso,	135	250		5
	20 dms.			

Painters' Colours—

Alexandria,	75 cks.			
Amsterdam,	50			1 cs.
Antwerp,	439			38 kgs. 20 dms.
Baltimore,				250 l. g.
Bombay,				
Bremen,				
Cartagena, N. G.,	100			
Christiania,	78			
Hamburg,	5	60		100
	cs.			2 bls.
Hong Kong,	21			
Iquique,	4			109 cs.
Lisbon,	21			
Manila,	947			21 dms.
Rotterdam,	2 cs.	15		14

Paraffin Wax—

Bari,	20 bgs.			
Bilbao,	20			

Havre,	25 cs.			
Leghorn,	18			
M. Video,	2			12 pks.
Pernambuco,				
Barcelona,	70			

Phosphorus—

Yokohama,	1 l.			£260
Vera Cruz,	18 c.			215

Pieric Acid—

New York,	2 l.			£230
-----------	------	--	--	------

Potassium Bichromate—

Smyrna,	1 l.	4 c.		£50
---------	------	------	--	-----

Potassium Carbonate—

Baltimore,	12 l.	5 c.		£220
New York,	17	15		320

Potassium Chlorate—

Alexandria,	4 c.			£8
Naples,	1 t.	5		48
Boston,	6	5		106
Vera Cruz,	4			160
Rotterdam,	3	15		140
Gutajewsky,	15			322
Philadelphia,	12			366
Ghent,	1	18		64
New York,	24	10		826
Gothenburg,	9			329

Rochelle Salts—

New York,	5 c.			£17
-----------	------	--	--	-----

Salt—

Abonnema,	27 l.			
Ambrizette,	175			16 c.
Amsterdam,	245			
Appam,	9	17		
Baltimore,	560			
Banana,	39	14		
Barbadoes,	50			
Bas Konilon,	49			W.C.A.
Belize,	235	10		33 cs.
Bombay,				
Boston,	210			
B. Ayres,	11	8		
Buguma,	27			
Cabenda,	5			
Calcutta,	13,806			
Cameroon,	77	3		
Cape Palmas,	24	14		
Christiania,	105			
Conakry,	80			
Copenhagen,	1,471			
Demerara,	78			
Dubreika,	100			
Ghent,	250			
Gd. Lahou,		12		
Hamburg,	101	6		
Iloilo,	16			
Kingston,	1	5		
Lagos,	201	11		
Landana,	9	11		
Manila,		8		
Manoh,	20			
Melbourne,	25			
M. Video,	7	13		
Montreal,	150			
Muculla,	6	5		3 cks.
N. Orleans,				
Newport News,	25			
Newfairwater,	337	3		
New York,	413			
Noqui,	40			
Old Calabar,	200			
Punta Arenas,	30			
Quoyah,	50			
Quissanga,	19	10		
Rangoon,	9-9			
Rio Munez,	120			
Rosario,	13	7		
Rotterdam,	79			
Salt Pond,	7	10		
Sierra Leone,	137	3		
San Sebastian,				75 bls.
Sherbro,	250			
Stockholm,	146	12		
Sydney,	250			
Trangisvaag,	76			

Salt—

Ambrizette,	20			
Antigua,	76			
Antofagasta,		3		
Antwerp,		1,800		
Baltimore,		3		
Barbadoes,	264			
Beira,	30			1
Belize,				
Bombay,	785			
Bonny,	50			
Boston,	2 cks.			1,650
Brass,	500			
Calcutta,	6			250 bds. 10
Cameroon,	1,038			
Cape Coast,	400			
Cape Palmas,	30			
Cape Town,	1,303			
Chefoo,	26			
Christiania,	170	5		300
Colon,	1,120			5
Constantinople,				20
Curacao,	430			
Delagoa Bay,	1,915			100
Demerara,	280			
E. London,	200			13
Galatz,	30			
Gibraltar,	300			
Gothenburg,	103			
Halifax,				400
Havre,	153 crts.			1,561
Honolulu,	100			100
Iloilo,				
Karachi,	300			
Kingston, Jam.	974	4		
Kingston,	1 ck.			
Lagos,	25			
Limassol,				7
Loango,	50			
Malta,	14			
Manaos,	250			
Menado,	1,000			
M. Video,				5
New York,	980			912
Noqui,	20			
Palma,	224			
Para,	500			2
Patras,				10
Pernambuco,				2
Penang,	30			
Pt. Elizabeth,	650			320 kgs.
Pt. Natal,	240			8 bds.
Pt. Said,	40			
Rangoon,	1,002			1
Rio de Janeiro,				1
Rotterdam,				375
St. Lucia,	140			
St. John's N.B.,	142			
San Fernando,	250			
San Juan,	100			
Santa Cruz,	100			
Savanna,				6
Shanghai,	3,000			
Singapore,	980			
Sourabaya,				12 tanks
Sydney,				
Teneriffe,	188			
Trinidad,	2,350			
Valparaiso,	50			100 kgs. 6
Warri,	200			

Ambrizette,	20			
Antigua,	76			
Antofagasta,		3		
Antwerp,		1,800		
Baltimore,		3		
Barbadoes,	264			
Beira,	30			1
Belize,				
Bombay,	785			
Bonny,	50			
Boston,	2 cks.			1,650
Brass,	500			
Calcutta,	6			250 bds. 10
Cameroon,	1,038			
Cape Coast,	400			
Cape Palmas,	30			
Cape Town,	1,303			
Chefoo,	26			
Christiania,	170	5		300
Colon,	1,120			5
Constantinople,				20
Curacao,	430			
Delagoa Bay,	1,915			100
Demerara,	280			
E. London,	200			13
Galatz,	30			
Gibraltar,	300			
Gothenburg,	103			
Halifax,				400
Havre,	153 crts.			1,561
Honolulu,	100			100
Iloilo,				
Karachi,	300			
Kingston, Jam.	974	4		
Kingston,	1 ck.			
Lagos,	25			
Limassol,				7
Loango,	50			
Malta,	14			
Manaos,	250			
Menado,	1,000			
M. Video,				5
New York,	980			912
Noqui,	20			
Palma,	224			
Para,	500			2
Patras,				10
Pernambuco,				2
Penang,	30			
Pt. Elizabeth,	650			320 kgs.
Pt. Natal,	240			8 bds.
Pt. Said,	40			
Rangoon,	1,002			1
Rio de Janeiro,				1
Rotterdam,				375
St. Lucia,	140			
St. John's N.B.,	142			
San Fernando,	250			
San Juan,	100			
Santa Cruz,	100			
Savanna,				6
Shanghai,	3,000			
Singapore,	980			
Sourabaya,				12 tanks
Sydney,				
Teneriffe,	188			
Trinidad,	2,350			
Valparaiso,	50			100 kgs. 6
Warri,	200			

Soda—

Boston,				10 cks.
Cape Town,	2 kgs.			
Piraeus,				7
Rangoon,	2			

Soda Alkali—

Antwerp,	44 brls.			</
----------	----------	--	--	----

ad—
10 kgs.
88
oride—
2 t. 5 c. 3 q. 634
5 46

CHESTER.

ending April 21st.

5 dms. 2 tins
Colours—
1 ck. 2 kgs.

Oil—
1 dm.

20

5

3

Salts—
10 cks.

171 cks.

Acid—
40 cks.

180 btl.

Soda—
50 dms.

50

Salts (otherwise undescr.)
4 dms.

100 cks. 130 brls.

Ants—
13 cs.

12 cs.

21 cks.

Oil—
2 brls.

10

Am Sulphate—
150 cks.

Salts—
10 cks.

Wax—
12 cs.

14 pks.

12 cks.

160 t.

Bicarbonate—
100 kgs.

5 brls.

1 ck.

36 cks.

Line—
25 dms.

3 cks.

HULL.

ending April 17th.

1 ck.

Am Sulphate—
95 bgs.

100

1,200

3,000 c.

25 cks.

4 dms.

25

Salts (otherwise undescr.)
48 cks. 16 btl.

6 20 cs.

19

6 pks.

5 539 lbs.

12 pks.

10 12

4 126

2 4

10 dms.

100

Riga, 10 871 pks.
Rotterdam, 102 60
Stockholm, 1 10 15
Stettin, 10 15

Cottonseed Oil—

Amsterdam, 1,592 c.
Antwerp, 954
Christiansand, 21
Constantinople, 88
Copenhagen, 20
Dunkirk, 283
Gothenburg, 254
Hamburg, 1,908
Königsberg, 98
Rotterdam, 639
Rouen, 470
Stockholm, 500
Stettin, 167

Creosote—

Kjöge, 500 t.
Stettin, 15 bls.

Dyestuffs (otherwise undescr.)

Christiana, 50 cks. 30 bgs.
Hamburg, 2
New York, 8 20 dms.

Glue—

Ghent, 2 cks.

Guano—

Dunkirk, 500 sks.

Linseed Oil—

Amsterdam, 639 c.
Bergen, 35
Bordeaux, 36
Christiana, 1,820
Christiansand, 121
Christiansund, 143
Copenhagen, 131
Drontheim, 832
Ghent, 7
Hamburg, 128
Rotterdam, 21
Stockholm, 35

Magnesia—

Constantinople, 6 cks.
Odessa, 17

Mineral White—

Amsterdam, 50 bgs.
Antwerp, 100

Paint—

Christiana, 8 cks.

Painters' Colours—

Amsterdam, 1 ck.
Antwerp, 2 3 cs.
Christiana, 5 2 7 dms.
Christiansand, 3 87 pks
Copenhagen, 17
Drontheim, 15
Göteborg, 5 15 dms.
Hamburg, 44 2 pks.
New York, 222 100
Odessa, 70
Rotterdam, 9 12 10 dms.
Reval, 7
Stockholm, 1 6
Stettin, 59 1

Pitch—

Antwerp, 416 t.
Odessa, 150 cks.
Rotterdam, 5

Soap—

Christiana, 1 cs.
Drontheim, 110

Starch—

Bergen, 10 bgs.

Superphosphates—

Aalborg, 354 t.
Odense, 206

Tallow—

Dunkirk, 110 cks.

Tar—

Amsterdam, 6 cks.
Bergen, 5
Bremen, 4
Copenhagen, 30
Ghent, 2
Hamburg, 10
Rotterdam, 7

Yarnish—

Amsterdam, 1 ck. 3 cs.
Antwerp, 3 10
Copenhagen, 1 4 cans
Rotterdam, 2
Stockholm, 3 1
Stettin, 1

Whiting—

New York, 24 cks.

GLASGOW.

Week ending April 22nd.

Borax—

Christiana, 630

Caustic Soda—

Rangoon, 3 t. 3 c.

Chemicals (otherwise undescr.)

Rangoon, 638

Coal Products—**Creosote**

France, 636

Creosote Oil

France, 692

Pitch

Antwerp, 752 t.
Caen, 200

Tar

Amsterdam, 13 brls.
Christiana, 70

Tar Oil

Hamburg, 13 t. 3 c.

Litharge—

Christiana, 68

Manganese—

Rotterdam, 10 t.

Paint—

Amsterdam, 7 c.

Potash—

U.S.A., 6557

Potassium Bichromate—

Ghent, 666
Antwerp, 569
Christiana, 208
Rotterdam, 23

Sheep Dip—

Sandy Point, 6100

Sodium Bichromate—

France, 3 t. 13 1/2 c.
Antwerp, 19 1/2

Starch—

Rotterdam, 12 c.

Sulphuric Acid—

Rangoon, 636, 105.

Tallow—

Rotterdam, 17 t.

Treacle—

Gothenburg, 45 t. 11 c.
Christiana, 15 1

TYNE.

Week ending April 17th.

Alkali—

Bergen, 2 t. 18 c.

Hamburg, 5 7

Leghorn, 5 17

Amsterdam, 33

Alum Waste—

Aarhus, 10 t. 3 c.

Copenhagen, 10

Ammonium Carbonate—

Halmstad, 1 t. 3 c.

Ammonium Chloride—

Gothenburg, 1 t. 19 c.

Antimony—

Hamburg, 2 t.

Rotterdam, 2

Barium Binoxide—

Genoa, 16 t.

Barcelona, 1 14 c.

Blanc Fixe—

Genoa, 10 t. 1 c.

Bleaching Powder—

San Francisco, 19 t.

Christiana, 14 2 c.

Hamburg, 9 3

Antwerp, 37 6

Leghorn, 6 2

Amsterdam, 15 17

Rotterdam, 15 17

Gothenburg, 50 9

Borax—

Aarhus, 1 t. 3 c.

Caustic Soda—

Hamburg, 10 t. 10 c.

Antwerp, 4 12

Genoa, 12

Barcelona, 50 2

Rotterdam, 28 6

Odense, 1 3

Copenhagen, 2 18

Gothenburg, 15 4

Colours—

Ergasteria, 11 c.

Copperas—

San Francisco, 5 t. 1 c.

Bergen, 1 12

Lamp Black—

Antwerp, 12 c.

Litharge—

Christiana, 6 t. 3 c.

Genoa, 1 1

Copenhagen, 11

Gothenburg, 1 1

Magnesia—

Hamburg, 4 c.

Barcelona, 9 t. 17

Copenhagen, 100 lbs. 5 1 q

Muriatic Acid—

Gothenburg, 19 c.

Paint—

Christiana, 6 c.

Hamburg, 2 t. 10

Rotterdam, 10

Copenhagen, 2

Malta, 1 15

Soda—

San Francisco, 8 t. 18 c.

Christiana, 12 10

Leghorn, 34 12

Amsterdam, 15 8

Rotterdam, 32 13

Gothenburg, 6 14

Soda Ash—

Hamburg, 10 t. 9 c.

Lisbon, 20 1

Sodium Silicate—

Gothenburg, 2 t. 11 c.

Sodium Sulphite—

San Francisco, 16 t. 10 c.

Sulphur—

Gothenburg, 20 t.

Superphosphates—

Helsingborg, 99 t.

Frederikshavn, 25

White Lead—

Copenhagen, 5 t. 7 c.

GOOLE.

Week ending April 14th.

Benzol—

Dunkirk, 1 ck.

Hamburg, 48

Rotterdam, 48

Chemicals (otherwise undescr.)

Amsterdam, 20 cks.

Hamburg, 40

Coal Products (otherwise undescr.)

Antwerp, 12 cks.

Amsterdam, 1

Boulogne, 31 1 cs. 4 dms.

Ghent, 5 120 bgs.

Hamburg, 82

Rotterdam, 2 1

Colours—

Hamburg, 39 pks.

Dyestuffs (otherwise undescr.)

Rotterdam, 1 cs.

Manure—

Antwerp, 200 bgs.

Rotterdam, 180

Hamburg, 424

Pitch—

Dunkirk, 203 t.

Antwerp, 801

Salt Cake—

Ghent, 100 t.

GRIMSBY.

Week ending April 17th.

Chemicals (otherwise undescr.)

Dieppe, 5 cks.

Hamburg, 72 dms.

Coal Products (otherwise undescr.)

Dieppe, 25 cs.

Hamburg, 2

Colours—

Antwerp, 10 cks. 10 cs.

Soap—

Dieppe, 3 cs.

PRICES CURRENT.

WEDNESDAY, APRIL 28TH, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25%, and 40%	per cwt.	5/10½	& 8/9
Glacial	"	40/-	
Arsenic S.G., 2000	"	1	4 0
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1½
Oxalic	nett	0	0 3½
Phosphoric, 1750°	"	0	0 1½
Picric	"	0	0 11
Sulphuric (fuming 50%)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
" " 150°	"	1	5 0
(free from arsenic, 145°)	"	1	7 6
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2½
Tartaric	"	0	1 0
Arsenic, white powdered	nett per ton	23	10 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	2 6
Aluminoferic	"	2	3 6
Aluminium (Ingot metal 98/99%	nett per cwt.	7	17 6
Ammonia, Anhydrous	per lb.	0	1 3
" 880=28° B.	"	0	0 2½
" =24° B.	"	0	0 1½
Carbonate	nett	0	0 3
Muriate	per ton	18	7 6
(sal-ammoniac) 1st & 2nd	per cwt.	35/-	& 33/-
Nitrate	per ton	33	0 0
Phosphate	per lb.	0	0 4½
Sulphate (grey) London	per ton	7	10 0
(grey) Hull	"	7	11 3
Aniline Oil (pure)	per lb.	0	0 8
Aniline Salt	"	0	0 7½
Antimony	per ton	31	5 0
(tartar emetic)	per lb.	0	0 9
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	12 6
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	42/6	to 65/-
Bleaching Powder, 35%	nett	6	7 6
Liquor, 7%	"	3	10 0
Bisulphide of Carbon	"	12	0 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	"	15/-	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	nett per lb.	0	0 6¾
Magenta	"	0	3 9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0	0 7
Benzol, 90's	per gallon	0	2 2
50/90	"	0	2 4
Carbolic Acid (crude 60°)	per gallon	0	2 7
(crystallised 40°)	per lb.	0	0 8
(liquid 95/97%)	per gallon	0	1 1
Creosote (ordinary)	"	0	0 2
(filtered for Lucigen light)	"	0	0 2½
Crude Naphtha 30% @ 120° C.	"	0	1 1
Grease Oils, 22° Tw.	per ton	2	15 0
Pitch, f.o.b. Liverpool or Garston	"	1	3 0
Solvent Naphtha, 90% at 160°	per gallon	0	1 8
Copper	per ton	48	0 0
Sulphate	"	17	5 0
Oxide (copper scales)	"	44	10 0
Glycerine (crude)	"	36	0 0
(distilled S.G. 1250°)	"	68	10 0
Iodine	nett, per oz.	0	0 7½
Iron Sulphate (copperas)	per ton	1	10 0
Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	13	0 0
Litharge Flake (ex ship)	"	14	15 0
Acetate (white)	"	23	0 0
brown	"	15	10 0
Carbonate (white lead) pure	"	16	15 0
Nitrate	"	1	0 0

Lime, Acetate (brown) (ex ship)	per ton	5	0 0
(grey) (ex ship)	"	8	7 6
Magnesium (ribbon and wire)	per oz.	0	3 1
Chloride (ex ship)	per ton	2	7 8
Carbonate	per cwt.	2	17 6
Calcined Magnesia	per ton	9	0 0
Sulphate (Epsom Salts)	per ton	2	15 0
Manganese, Sulphate	"	16	0 0
Borate	per cwt.	2	10 0
Ore, 70%	per ton	3	10 0
Methylated Spirit, 61° O.P.	per gallon	0	1 8
Naphtha (Wood), Solvent	"	0	2 7
Miscible, 60° O.P.	"	0	2 9

Oils:—

Cotton-seed	per ton	15	10 0
Linseed	"	15	15 0
Petroleum, American	per gallon	0	0 6½
Stearine	per ton	19	10 0
Phosphorus (yellow)	per lb.	0	2 8
(red)	"	0	2 8
Potassium (metal)	per oz.	0	3 7
Bichromate	nett per lb.	0	0 4½
Carbonate, 90% (ex ship)	per ton	17	10 0
Chlorate	per lb.	0	0 4
Cyanide, 98%	"	0	0 11
Hydrate (Caustic Potash) 90%	per ton	24	0 0
(Caustic Potash) 75/80%	"	20	15 0
(Caustic Potash) 70/75%	"	19	15 0
Nitrate (refined)	per cwt.	1	1 6
Permanganate	per cwt.	3	17 6
Prussiate Yellow	per lb.	0	0 5
Sulphate, 90% (ex ship)	per ton	9	15 0
Muriate, 80% (do.)	"	8	10 0
Silver (metal)	per oz.	0	2 4½
Sodium (metal)	per lb.	0	2 11
Carb. (refined Soda-ash) 48%	nett per ton	4	15 0
(Caustic Soda-ash) 48%	"	4	5 0
(Carb. Soda-ash) 48%	"	4	0 0
(Alkali) 58%	"	3	17 0
(Soda Crystals)	"	3	5 0
Acetate (ex-ship)	"	13	0 0
Arsenate, 45%	"	15	0 0
Chlorate	per lb.	0	0 4½
Borate (Borax)	nett, per ton	16	15 4
Bichromate	per lb.	0	0 3½
Hydrate (77% Caustic Soda) (f.o.b.) nett pr. ton	"	0	2 6
(74% Caustic Soda)	"	8	2 4
(70% Caustic Soda)	"	7	2 6
(60% Caustic Soda)	"	6	3 6
(pure liquor 90° Tw.)	"	5	15 0
77/78% powdered (99% hydrate)	"	13	0 0
Bicarbonate	"	6	10 0
Hyposulphite	"	5	3 6
Manganate, 25%	"	15	0 0
Nitrate (95%) ex-ship Liverpool	per cwt.	0	8 0
Nitrite, 98%	per ton	30	0 0
Phosphate	"	12	0 0
Silicate (glass)	per ton	4	10 0
(liquid, 100° Tw.)	"	3	10 0
Stannate, 40%	per cwt.	3	2 9
Sulphate (Salt-cake)	per ton	0	19 0
(Glauber's Salts)	"	1	7 6
Sulphide	"	6	15 0
Sulphite	"	5	0 0
Strontium Hydrate, 100%	"	3	0 8
Sulphocyanide Ammonium, 95%	per lb.	0	0 6½
Barium, 95%	"	0	0 4½
Potassium	"	0	0 6½
Sulphur (Flowers)	per ton	7	10 0
(Roll Brimstone)	"	6	10 0
Brimstone: Best Quality	"	4	15 0
Superphosphate of Lime (26%)	"	2	15 0
Tallow	"	18	0 0
Tin Crystals	per lb.	0	0 4½
English Ingots	per ton	64	0 0
Zinc Spelter	"	17	7 6
Chloride (solution, 100° Tw.)	"	5	0 0

THE CHEMICAL TRADE JOURNAL

AND
OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

20.

SATURDAY, MAY 8, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Dollar 313	Selected Correspondence..... 319
Sewage Scheme.. 314	Tar and Ammonia Products 320
..... 315	Miscellaneous Chemical Market .. 320
Best Complete Speci-..... 315	Report on Manure Material 320
tro-Cyanide Process..... 315	The Metal Markets..... 320
ottings 316	Liverpool Oil and Colour Market.. 321
ommittee 316	West of Scotland Chemicals 321
ical Industry 316	Hull Paint, Oil, and Colour Report 321
hibition of 1898..... 317	Tyne Chemical Report 321
svaal 317	New Companies..... 321
espondents..... 317	Imports..... 322
panies 318	Exports 324
ever Stone-Breaker 319	Prices Current 328

VERTISEMENTS.

ED Laboratory Assistant, with knowledge of Works preferred.—Full particulars to "D.S." c/o Street and Co., London, E.C.

LE, Cheap, Egg-end Boilers, from 20 ft. by 5 ft. by 6 ft.; also Lancashire Boilers, 30 ft. by 7 ft., suitable for Geo. Dean, Trentham-road, Longton, Staffs.

otices.

Communications for the *Chemical Trade Journal* should be sent by Post Office Orders made payable to—

BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert. Manchester."

NATIONAL TELEPHONE 3060.

ns of Subscription, commencing at any date, o the *Trade Journal*,—payable in advance,—including postage of the world, are as follows:—

7 (52 numbers)	12s. 6d.
early (26 numbers)	6s. 6d.
erly (13 numbers)	3s. 6d.

re invited to forward items of intelligence, or cuttings newspapers, of interest to the trades concerned.

ill oblige by making their remittances for subscriptions by Office Order, crossed and payable to "Davis Bros."

ations for the Editor, if intended for insertion in the 's issue, should reach the office not later than Tuesday

Advertisements.

vertisements of Situations Vacant, Premises on Sale or To be Let, Wants, and Specific Articles for Sale by Private Contract are *Chemical Trade Journal* at the following rates:—

Words and under.....	2s. 0d. per insertion
each additional 10 words	0s. 0d.

ents of Situations Wanted are inserted at one-half the when prepaid, viz.:—

Words and under.....	1s. 0d. per insertion.
each additional 10 words.....	0s. 3d.

tisements, Announcements in the Directory Columns, and all Adver. prepaid, are charged at the Tariff rates, which will be forwarded on

nents intended for insertion in the current week's issue the office by Thursday morning at the latest.

THE ALMIGHTY DOLLAR.

IT has often been said that the dollar rules the world, and naturally it follows that the individual or body of individuals who possess the greatest number of them should be the actual rulers, and truly so it seems to be.

Viewed in this light, the Petroleum Inquiry, which has now nearly run its course, will have done a little good if, in spite of the wanton inanities it has provoked, it brings home to the public and their "servants" the dangers that threaten our commercial and professional integrity.

We have done our best to keep before our legislators the real object of their present Inquiry, and if they prefer to be led off the scent—they prefer to make themselves ridiculous in the eyes of their constituents, and are welcome to their choice.

The matter we have to deal with now, however (though arising out of the insight into the tactics of King Mammon of New York afforded by the Petroleum Inquiry), is of much more general, and, in fact, national importance than even the sacrifice of 365 British lives a year.

The information on which we build our plaint is accepted as well founded in quarters that are known to be generally well informed, and is not an idle theory of our own, created for the sole purpose of proving one point, but on the contrary, as the plaintiffs, we have a sound *prima facie* case.

The last ten or twelve witnesses at the Inquiry have one and all shown that they were testifying on points they knew nothing about, because, while agreeing in their own remarkable statements, they have all given each other the "go-by" when cross-examined, with the result that their evidence, when analysed, cancels itself. Even the director of the Standard Oil Co., who came to tell us so much about the question of cost, confined himself to carefully generalised platitudes and truisms, and, when pressed for facts and figures, fell back on the old familiar S.O. trick of refusing, point blank, to give any information.

It is also significant that these witnesses all said they dealt mainly in American oils, though they failed so hopelessly to justify their belief in it; and one witness even went so far as to admit that he was bound by an agreement to sell the Anglo-American Company's oils only.

Now when we have pointed out the enormity of one interested oil company being able to waste week after week in calling hawkers and oil dealers, who at the best either confess to or unconsciously display the grossest ignorance of the questions on which they pose as national witnesses, we have been told that we are labouring under biased opinions. We would ask this question, however: If this bias is produced by facts that our opponents fail to disprove, are we not justified in yielding to its influence? The facts that so stubbornly stand in the way of our "conversion" to the faith of the dollar devotees are unfortunately facts that appeal

most strongly to those who have some technical knowledge of the oil question, but the aspect that we are now coming to will appeal to all.

From start to finish of this inquiry the existence of the independent Russian oil supplies has been a thorn in the flesh of the S. O. Co. Their tales of increased cost and scarcity have been shown up by comparison with the fact that the abundance of Russian oil will keep prices normal, while even now Russian oil having a flashpoint 10° above the American "compound" is actually cheaper.

It is not surprising, therefore, that when this inquiry was looming in the distance a rumour was spread that the S. O. Co. and Russian producers were going to pool their interests. The rumour proved to be the bastard offspring of the wish, for since then we have heard the evidence of Professor Mendeleeff, which has been confirmed by the policy of the Russian Minister, Mr. Witte.

There are, however, wheels within wheels, and though it may seem a far cry to the Arbitration Treaty with the United States, there is apparently a close relationship between the fate of this Treaty and the dictates of the S. O. Co. The treaty is held to be prejudicial to Russian interests. Grovelling to gain the goodwill of Russia, in order to grab the supplies of their greatest and uncompromising competitors, the S. O. Co. is publicly charged with engineering the rejection of the Treaty. It is a perfectly feasible charge. Owing to the subtlety of riches, this corporation can adjust to their own ends the Laws of America, and dispense Justice (with a capital J). They are fixing up our English Petroleum Laws for us, on the inexplicable evidence of three or four men whose earlier experiments and writings give the lie to their present utterances. Why, then, should they not have a large finger in influencing the reception of this Treaty in the United States Senate?

If the iniquities of this combination were taken up by one or two leading daily papers, there would be some heart-burnings at Whitehall and Washington. The old plea that the evils of America do not affect us is void. The evils are spreading into and contaminating our own country, and those who should give us warning, dare not, lest the doing of their duty should be the undoing of their dollar-laden coffers, which are fictitiously supposed to be filled with honest English sovereigns.

The present apathy is grimly amusing. We knit our brows and shake our heads at the mention of Tammany Hall; we complacently return thanks that "we are not as other men," when Justice at so many dollars a Judgment is spoken of; we hold up our hands in amazement at the very thought of electioneering bribery; we are indignant at the idea of Illicit Commissions, and our judges denounce them; we shudder at Eastern oppression and atrocity, and the notion of Nihilism is revolting; but the wily Sam "gilds" the pill accordingly, and we do not even demur when the taskmasters of the States extend their nasty methods to this country, deafening our leaders to the dictates of truth and public safety, warping our integrity, and forcing us to legalise the sale of their waste products as burning oil. And "burning" oil it is, to the tune of 365 victims a year. But the dollars gained by those who connive at its use may yet burn holes in their pockets, and scar their reputations. There is more to come if this inquiry fails to elicit the Truth.

FLOATING MORE SOAP.—Some interest is being manifested in the approaching flotation as a company of the firm of Messrs. Watson, soap boilers, of Leeds, which is announced to take place shortly.

THE MANCHESTER SEWAGE SCHEME.

AT the meeting of the City Council on Wednesday, upon the proceedings of the Rivers Committee being moved for approval, N. Bradley drew attention to a report presented at a meeting of the Committee on the 5th April, to the effect that the chairman, the chairman, and chairman of the Purifying Works Sub-committee reported that they had considered, with the city surveyor, the question of providing artificial filtration, with a view to practically testing the method recommended by Sir Henry Roscoe. The Committee recommended that the city surveyor should be instructed to prepare estimates for filters having an area of one acre each. He moved as an amendment that the proceedings of the Committee be approved with the exception of that portion, which should be referred back for further consideration. He said he moved the amendment on the ground that the proposed new filters were quite unnecessary. Neither the filters nor the experiments were required. In 1895 it was decided to pay £3 for professional experiments, and two experimental filters were constructed at Davyhulme in December of that year, £160 being paid for construction. Since then £17 had been paid for maintenance, and the cost paid for professional advice and analysis £1,000; and the bill was going on. In those circumstances he thought they ought to have practical knowledge of their own as to what those filters would do, else where was the use of having the filters at all? The Committee now proposing that they should have two larger filters, so that if they already possessed were not sufficient for their experiments, they had paid £1,000, in addition to the cost of labour, &c., for nothing. In addition to their own experiments, the advantage of the experience of London and Glasgow, which should be sufficient for all purposes, and for the Council now to embark upon the proposed filters, the Committee was, to his mind, simply a waste of money, deprecated the great expenditure which was being incurred by the Committee in this matter. The Committee were determined to do the best they could in the matter of the precipitation and treatment of sewage, and they should leave it there until they could come to the proper authority, who would say that they had done all that was practicable and all that could be required. He did not think that the Council should be paying over £900 a year to the Mersey and Irwell Committee, and that that body should be constantly spending more money in useless experiments. If they only had the information they had properly before any tribunal, they would at once that the Council had done all they practically could, and they ought to be required to do, to send a proper effluent to the Canal. Mr. Shuttleworth seconded the amendment. A discussion followed, in which it transpired that over £20,000 a year was spent on precipitating chemicals. The Chairman of the Committee entered a protest against the amendment being brought forward on notice, adding that if the Council read the resolution carefully they would see that there was not a word in it signifying that the services of Sir Henry Roscoe were to be continued as the adviser of the Committee in making these tanks. It simply asked the Council to give the Committee authority to try experiments on a larger scale, and to report the result hereafter.

Upon a division, the amendment was adopted by 33 votes to 2.

PURCHASING RUSSIAN OIL WELLS.—The petroleum industry in Baku has lately attracted the attention of Englishmen. One firm has already sold its entire plant to Englishmen for 5,000,000 roubles, which 10 per cent. was paid as earnest money. If, for any reason, the transfer should not ultimately take place, according to Russian law, the earnest money must be refunded. It is reported that negotiations for further purchases are going on.

POLLUTION OF THE IRWELL.—At Bury last week, John V. Sons, Broad Dumers Paper Mill, Radcliffe, were summoned before the Mersey and Irwell Joint Committee for polluting the river Irwell. Mr. Wilson, for the Committee, contended that the land bought for the tanks had been used for other purposes. This was denied by the defendants, who contended that they had spent over £2,000 in cleaning their effluent, and asked for further time. Fined £5 and costs.

THE RESIN MARKET.—In their monthly resin report, Messrs. S. Chiesman & Co., of London and Liverpool, say that, though the business in new crop has been done during the month, buyers have been rather inclined to stand off for lower prices, notwithstanding the decrease in the receipts in Wilmington, and the small stock do not seem to justify a decline in value. Medium grades have been a little easier, but the demand is rather slow at present. In London the market has been very quiet, and prices almost unchanged; at public wharves at the beginning of the month was 11.847 bar against 13,733 barrels at the corresponding time last year. The market in Liverpool has been rather dull, with prices slightly easier for grades; but stocks have become decidedly smaller than they were while ago, and there is very little afloat.

The Patent List.

It is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

and Oxydizing Sewage after Precipitation. J. B. Petrie. 9,858.

for Heating and Utilizing Furnaces. S. G. Smith. 9,905. April 20.
for Carburetting Air. G. Buck and E. S. Torrey. 9,929. April 20.
Manufacture of Oxygen from Air. C. E. Melville and J. Horn. April 21.

Gold and Silver Ores with Solvents. J. C. Montgomerie and H. 9,954. April 21.

Thorium Oxide and Enriching Monazite Sands. 9,996.

the Air Supply to Furnaces. J. Dickson and W. Nicholson. April 22.

Bay Salt. A. MacNab. 10,078. April 22.

Old-Zinc Slimes from Cyaniding. A. James. 10,118. April 23.
R. J. Hickton. 10,166. April 23.

Residue from the Cyaniding of Tailings. C. P. Shrewsbury. April 23.

Paint Colours. S. Pitt. 10,208. April 24.

Antidip for Gas Works. J. Whimster. 10,221. April 24.

Apparatus. E. D. Holmes. 10,268. April 24.

Batteries. A. E. Ann. 10,279. April 24.

ACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

Apparatus for Filtering Sewage and Impure Liquors. Milton-street Iron Works, Lower Broughton, Manchester. Eng. May 4, 1896.

It is much the same in principle as Specification 4,732, instead of a felt belt for the filtering medium, a cotton fabric, raised on one side, is used. At intervals, also, a web of wire, or a narrow steel plate, is thrown across to keep the belt flat and maintain its width. There is an automatic arrangement for removing the impurities which are collected on the belt of filtering material. The patent is essentially a new one, for the details of which the three drawings which the specification should be consulted.

Improved Method for the Treatment of Town's Sewage, and the like, for the Destruction of Animalculæ and the use of a Fertilizing Compound. S. de Petroff, 29, Rue de la Paix, Brussels. Eng. Pat. 23,676. October 24, 1896.

The sewage is divided into three sections, comprising the treatment street sweepings, and offal. The sewage is heated in a tilted vertical still, with scories from the dephosphorizing of ammoniacal vapours given off are liquefied in a condenser, and into a trough containing superphosphates suspended in fixing the ammonia as phosphate. The residue from the after filter-pressing is also valuable as a fertilizer when an absorbent, such as peat, etc. The street sweepings are a given quantity of organic refuse, and furnace, the clinker incorporated with the residue from the distillation of the sewage. This provides all the heat and steam required for treating the sewage, and also enables the gases (which are collected into a holder from the plant) to be burnt up. The offal is first treated with soda and soda. The mass is then packed in layers, with soda and furnace, the nitrogen evolved as ammonia being also absorbed by the superphosphate absorbing tanks. Such is the scheme. There are two drawings showing the arrangement of the details of the latter also being shown.

Process in the Extraction of Zinc from Ferruginous Liquors, suitable to the Treatment of the Spent Liquors of Copper. J. R. Wylde, J. W. Kynaston, and J. Brock, all of Gt. Exchange, Liverpool. Eng. Pat. 10,494. May 15, 1896.

It is taken of the fact that in the presence of excess of carbonate, zinc is completely precipitated by H_2S from solutions of ferrous salts. The spent liquors are heated in stills, much in stills, to a temperature of $150^\circ F.$, when sufficient calcium (lime mud from the Chance process) is added to neutralise the acid, and leave an excess equivalent to the amount of zinc

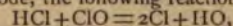
present. Hydrogen sulphide is then blown in till the solution is saturated. A little fresh spent liquor is added to take up excess of H_2S , and the whole allowed to settle. The sludge of zinc sulphide and calcium sulphate is run on to a filter bed, and washed to free it from iron salts. The zinc sludge is next treated in an ordinary Weldon still with hydrochloric acid, liberating H_2S to be used over again. The contents of the still are then run on to a filter to separate the zinc chloride solution from the undecomposed sulphate of lime. The zinc is precipitated as hydrate, with milk of lime, washed, dried, and calcined, leaving the oxide of zinc fit for use. If a very pure oxide is required, and the zinc sludge was not washed quite free from iron salts, the zinc chloride solution is oxidized with bleach, the ferric iron thrown down with calcium carbonate, and the filtered zinc chloride solution treated as above to recover the oxide. Thus, pure oxide is obtained, with calcium sulphate as a by-product, while the H_2S is used over and over again when once a sufficiency of zinc sludge has collected.

A Process of Manufacture of Sulphide of Aluminium which may or may not be combined with other Sulphides (or Sulphurets). D. A. Peniakoff, Rue Baudin Pierre, Huy Belgium. Eng. Pat. 1,555. May 27, 1896.

Anhydrous aluminium fluoride, or double fluorides, are fused with sodium sulphide. The aluminium sulphide so formed can be reduced *in situ* to metallic aluminium by an electric current or reducing gases as soon as formed in the crucible. Then by feeding in aluminium sulphate and carbon the process becomes continuous, because the sulphate is decomposed by the NaF resulting from the first reaction, and the Na_2SO_4 formed in the second reaction is changed by the carbon into Na_2S , which thus enters the process *de novo*.

Improvements Relating to the Electrolysis of Soluble Salts, especially Applicable for the Production of Chlorine. A. J. Outhenin-Chalandre, 95, Boulevard, Beaumarchais, Paris. Eng. Pat. 15,834. July 17, 1896.

In the ordinary electrolysis of brine, oxychlorine compounds are formed at the anode, and to prevent this a continuous supply of hydrogen is provided at the anode to combine with the oxygen and leave pure chlorine. The supply of hydrogen may be secured in any suitable way. For example, hydrochloric acid may be supplied continuously to the anode, the following reaction being claimed:—



which, it is stated, produces pure chlorine and water.

Improvements in the Purification of Sewage and other Liquids. E. W. T. Jones, 10, Victoria-street, Wolverhampton, and J. Garfield, 163, Penn-road, Wolverhampton. Eng. Pat. 11,243. May 23, 1896.

A filter-bed of broken coal or bituminous shale is used to remove organic matter, in particular, and other precipitated matters from sewage. The bed should be about 6 feet thick, built up in layers, as follows:—Bottom layer, 6 inches of half-inch cubes, well screened; next, 12 inches of well-screened eighth-inch cubes, followed by a 2 feet 6 inches layer of sixteenth-inch cubes, likewise screened; the whole being topped by a fourth and final layer of 2 feet of unscreened slack that will pass a sieve with a three-sixteenths mesh.

THE KEITH ELECTRO-CYANIDE PROCESS.

THIS process, for recovering gold from ores, is being exploited by some influential South African men, of whom Mr. Paddon and Mr. Tudhope, of the Johannesburg Consolidated Investment Company, are the chief. Dr. Keith, the inventor, is an American electrician, who has for several years been connected with the Sandycroft Foundry in England. The process consists of two parts, that may be separately considered: First, the process for dissolving the gold out of the crushed ore, and second, the recovery of the gold from the solution. Dr. Keith's improvement in the dissolving process consists in adding to the solution of potassium cyanide a certain amount of cyanide of mercury. In practice he states that he finds that the best results are obtained when the solvent contains 0.05 % of potassium cyanide and 0.025 % cyanide of mercury. This mixture of cyanides, it is claimed, operates very much faster than the simple potassium cyanide. At present we have no exact figures relating to the rate of solution, but experiments on a practical scale are now being made, and will be available shortly.

The process for the recovery of the gold from the solution is an electrolytic one. The gold and the mercury are deposited together upon amalgamated copper plates. The amalgam so deposited is scraped off and the gold recovered by distilling off the mercury in the usual way. The anode is not allowed to dip into the cyanide solution, but is placed in a separate compartment and surrounded with a solution of an alkaline salt, so that the cyanide does not become decomposed. The electro-motive force of the current need not be more than $\frac{1}{2}$ volt and the current density on the depositing surface may be as low as 0.06 ampere per square foot.

Parliamentary Jottings.

SALT IN THE NAVY.

In the House of Commons, last week, Sir C. Cameron (Glasgow, Bridgeton) asked the First Lord of the Admiralty whether it was the case that salt was not included among the condiments issued by the Admiralty for use on board ship; and whether, considering the importance of salt as a dietetic ingredient, and the fact that the use of salt meat as the principal form of food on board ship had long been superseded, he would consider the propriety of issuing salt as well as mustard and pepper for use on board Her Majesty's ships.

Mr. Macartney (Antrim, S).—Salt has hitherto been issued as a ration only in the case of boys in training ships and troops on passage, where the "savings" system does not exist. My attention was only drawn to this after the estimates for the current year were framed, but arrangements are now being made which will meet the views expressed in the hon. member's question.

THE WATER SUPPLY OF LONDON.

Mr. Cohen (Islington, E.) asked the President of the Local Government Board whether he could state to the House the names of the members who would form the Royal Commission on the Water Supply of London.

Mr. Whitmore (Chelsea) asked the President of the Local Government Board a similar question; and when it was his intention to introduce the Bill for strengthening and improving the position of water consumers in the metropolis.

Mr. Chaplin (Lincolnshire, Sleaford).—The names of the members of the Royal Commission on the Water Supply of London are as follows:—The Right Hon. Lord Llandaff, chairman; the Right Hon. J. W. Mellor, M.P., Sir John Dorington, M.P., Sir G. B. Bruce, C.E., Major-General A. de Courcy Scott, R.E., Mr. A. de Bock Porter, C.B., Mr. H. W. Cripps, Q.C., Mr. Robert Lewis. I may add, with reference to the question of my hon. friend the member for Chelsea, that I hope to bring in a Bill dealing with the water question as soon as I see any prospect of making progress with the measure.

RIBBLE JOINT COMMITTEE.

AT the last meeting of this Committee, held at Preston, the Chief Inspector (Mr. Naylor) reported on the pollution of manufacturers, and his report was adopted in conjunction with the following resolutions:—

Blythe & Co., Chemical Manufacturers, Church.—The firm, in a letter to the Committee, said: "We have in our previous letters pointed out to you that the drainage from our land does not come under the Rivers Pollution Act of 1876, as it is not an effluent proceeding from a manufacturing process. We think that if you will lay before the Joint Committee the fact that our alkali waste heap is extremely old—none has been deposited for over 20 years, and the drainage is exceedingly small, and for all practical purposes innocuous, they will see that the matter is not a serious one. We are anxious to do all that is reasonable, but we do not see how the drainage can be collected, except at an immense cost, which would be unreasonable, considering the few gallons per day involved." The consideration of the position was adjourned for three months.

Sun Paper Mill Company, Feniscowles.—Mr. Clegg (manager) appeared before the Joint Committee to show cause why proceedings should not be taken against this firm. He stated that the firm altogether disputed the sample taken on the 26th March, as they did not consider that it came from their works. He admitted the offence of the 30th March, however, and stated that the reason an untreated effluent was being discharged into the river was that the pump had broken down. Resolved: That the Clerk be and he is hereby instructed to take proceedings against the Sun Paper Mill Company, Ltd., Feniscowles, near Blackburn, for offences against Part III., Section 4, of The Rivers Pollution Prevention Act, 1876.

Messrs. R. Holroyd & Co., Dyers, Colne.—Resolved: That a fresh application be made to the Local Government Board for their consent to proceedings being taken against Messrs. Richard Holroyd & Co., Garden Vale Dyeworks, Colne, for offences committed by them against Part III., Section 4, of The Rivers Pollution Prevention Act, 1876.

Messrs. Greenhalgh & Co., Burnley.—Resolved: That the Clerk be instructed to write to Messrs. Greenhalgh & Co., drawing their attention to the statement contained in the Chief Inspector's report, and informing them that the Joint Committee must request them to take steps to prevent a recurrence of the cause of complaint.

Messrs. A. M. Peebles & Son, Ltd., Rishton.—The Clerk laid before the Joint Committee an Order from the Local Government Board, dated the 1st. April, 1897, consenting to proceedings being taken against Messrs. A. M. Peebles & Son, Ltd., for offences against

Part III., Section 4, of The Rivers Pollution Prevention Act, 1876. Resolved: That the Order of the Local Government Board be put as an appendix to these proceedings. Resolved: That the Clerk be instructed to take proceedings against Messrs. A. M. Peebles & Son, Ltd., for offences against The Rivers Pollution Prevention Act, 1876, unless before the next meeting of the Joint Committee undertaking is received from them that the installation of the new purification plant will be commenced at once and continued with cessation.

Darwen Paper Mill Co., Ltd. (Lower Darwen Mill).—Resolved: That the Clerk be instructed to write to the Darwen Paper Mill Company pointing out that the treatment of the effluent at their Lower Darwen Mill is still unsatisfactory, and that the Joint Committee require them to take steps to improve the same.

Darwen Paper Mill Co., Ltd. (Dimmock's Mill).—Resolved: That the Clerk be instructed to write a similar letter to the Darwen Paper Mill Company with regard to this mill.

Waterside Paper Mill Co.—Resolved: That the consideration of the position of the Waterside Paper Mill Company be adjourned for two months, and that the Clerk be instructed to write to the firm pointing out that a sample of the effluent which was taken on the 11th February was unsatisfactory, and that the Joint Committee require them to take steps to improve the same.

Scotshaw Brook Paper Company.—Resolved: That the consideration of the position of the Scotshaw Brook Paper Company be adjourned for two months, and that the Clerk be instructed to write pointing out that the effluent from their works is still unsatisfactory, and that the Joint Committee require them to take further steps to improve the same, as, in their opinion, further settling space and additional works are required.

Mr. W. Barnes, Whitebirk, Blackburn.—Resolved: That the consideration of the position of Mr. W. Barnes be adjourned for two months, and that the Clerk be instructed to write pointing out that the effluent from his works is still unsatisfactory, which, in the opinion of the Joint Committee, is owing to the tanks not being emptied of as often as they ought to be.

Messrs. J. Riley & Sons, Hapton.—Resolved: That the consideration of the position of Messrs. J. Riley & Sons be adjourned for two months, and that the Clerk be instructed to write to the firm drawing their attention to the unsatisfactory nature of a sample of their effluent which was taken on the 15th March.

A number of other cases came before the Committee, and of these were adjourned for three months, 7 for four months, and 3 for six months. This was all the business of importance.

SOCIETY OF CHEMICAL INDUSTRY.

NOTTINGHAM SECTION.

THE sixth meeting of the present session of the Nottingham Section of the Society of Chemical Industry was held on Wednesday evening, April 28th, at the Wyvern Hotel, Leicester, when there was an unusually large attendance of members. Besides the Council, who in a few well-chosen remarks welcomed the Society to the town, there were Messrs. Burford, Cholerton, and Kempson among the guests present from Leicester. Dr. Clowes and Dr. Sudborough, Mr. Caven, Mr. Forth, Mr. Jackson, Mr. Paton, Mr. Pentecost, Mr. Ward, and Mr. T. W. Hon. Sec.) had come from Nottingham; whilst Messrs. Carulla, and C. Taylor represented Derby.

The Chairman (Mr. Carulla) remarked on the circumstances that they were holding their first meeting in Leicester, and laid emphasis on the utility of visiting different towns, a practice originated during Mr. Paton's chairmanship, when the section met at Derby, on the occasion of going away from Nottingham. He believed that, with the exception of the Scottish Section, they now covered ground by their visits to different towns than any other Section.

Dr. Clowes thanked the Chairman for his words of congratulation on the occasion of his (Dr. Clowes') nomination by the Council to the Presidency of the Society next session. He was willing to accept the honour, not so much from personal motives as because he felt that it might be regarded as the representative of a band of workers who in their earliest days had striven to make the section of some use to the Society.

Dr. J. J. Sudborough, F.I.C., then gave a lucid account of his attempt to prepare methylene. He pointed out that notwithstanding the tetravalency of the carbon atom, CO was found to be a stable compound. There seemed, therefore, to be no ground for considering compound CH₂ as one impossible to obtain. Various attempts to produce this were described; amongst them one to obtain CH₂I₂. In no case, however, did the experiments lead to the molecule of methylene being seemingly unable to resist attack, and C₂H₄ was the result in those cases where CH₂ was most within reach.

was said that a record of failures was often as instructive as of successes. He might add that although the paper had a scientific value, subjects not absolutely technical had been forward in the early days of the section, and he thought the might occasionally be repeated with advantage. He would at acetylene might possibly be found a useful substance to with the object of obtaining methylene from it. chairman said that as a first step some substance might be found to hold the methylene, as it were, in solution, in a similar way as ammonium is held by mercury in the well-known ammonium amalgam. When having also made some remarks, Dr. Sudborough replied,

J. Pentecost, F.I.C., read a paper of special interest to "On the Removal of Mineral Oil Stains from Dyed Fabrics." He explained that in the course of manufacture stains are produced on fabrics, such as lace goods, owing to oil from the machinery on them, which no amount of ordinary washing will remove. Stronger detergents are of no avail if the oils are not saponified. The most approved methods adopted were gone into, and it was pointed out that occasionally stains of such a persistent character are met with whilst they seem to be removed, the stains will re-appear on after long standing in the warehouse.

Mr. Pentecost said that Mr. Pentecost had exhibited great courage, in giving a real service, by reading such a paper before the Society. He certainly deserved hearty thanks from those in the trade. He pointed out the outcome might be the removal of what was a great deal of all who had to do with the disposal of such goods. He was a seller, had been put to much inconvenience by these stains, which showed themselves only after the fabrics had been put into stock, causing no end of annoyance.

Dr. Sudborough said it struck him as an outsider that as the difficulty arises only from the oils used for lubricating the machinery, the best plan would be to prevent them coming into contact with the fabrics by proper protection.

He added that he should think there ought to be no difficulty if he was not an expert in lace machinery—in preventing any oil on to the fabrics in course of manufacture, and especially as it appeared to be the case, was due to hot bearings. As an expert of what could be done in the way of prevention, he would be the case of the English railways, where by proper care and attention, a hot bearing had become one of the rarest accidents.

Chairman, Dr. Clowes, Mr. Kempson, and Mr. Wood also took part in the discussion.

Mr. Pentecost said in reply that solvents such as benzene as suggested by Mr. Wood were out of the question on account of cost. It was at the foundation of the whole difficulty, for if saponified oils were employed as lubricants, the stains might be removed with some certainty. Competition was so keen that only the least materials could be employed.

S. Burford, F.C.S., then explained the construction and use of the instrument (Oleo-refractometer) for measuring the refraction of oils, by means of which a busy analyst may, in a short time, test a batch of samples "those deserving more careful attention would not consider the indications of the instrument as to condemn a sample, but as a means of saving time to that samples to analyse, he thought it invaluable.

Members of the papers were heartily thanked, and the proceedings closed with the announcement that the next meeting of the section would be in Nottingham, on May 26th.

THE ITALIAN EXHIBITION OF 1898.

We are asked to give publicity to the fact that next year (1898), being the fiftieth anniversary of the proclamation of the "King of Italy," a General Italian Exhibition will be held in Turin. The exhibition comprises eleven sections, among which are to be found: "Agriculture and Stock Raising," "Food Products," "Manufacturing Industries," and an international section of electricity.

At the same time we have pleasure in drawing the attention of our readers to the existence of a permanent collection of trade products in Turin, which will always be glad to receive and exhibit samples of manufactures. We have seen this "Museo Merciológico," which is well filled, and have no hesitation in testifying to its *bona fides* and value. The building is spacious, and well equipped for the display of exhibits.

It is curious to see what a large number of English firms were represented under the glass cases, and then, perhaps still more curious to see how many were conspicuous by their absence. The institution is somewhat hampered by having no funds wherewith to purchase samples, or even to pay for their transport, but we imagine

there are very many English manufacturers who might with profit to themselves send sample collections of their products to stand as a permanent advertisement in this trade museum.

The curator, to whose kindness we were much indebted on the occasion of our visit, is M. Casimir Arduin, Museo Merciológico, Corso Palestro, No. 1 bis, Torino, Italia, who has recently written to ask us if any of our friends can supply him with samples of tanning materials, kauri gum, aluminium products, and sodium peroxide.

SALT IN THE TRANSVAAL.

At a recent meeting of the Oceana Development Company, the chairman (Mr. Conybeare) made reference to the company's works on the salt pan at Zevenfontein. He said this was not one of those farms originally belonging to the company, but it was within five or six miles of their farms, Diamantfontein, Pienaarsfontein, and Graspan, in the Bloemhof district. Zevenfontein was one of the most remarkably prolific sources of salt supply he had ever known. When last in the Transvaal he had the opportunity of visiting it and inspecting it carefully, and comparing it from the point of view of its present and future resources with the great salt supply district in Zoutpansberg, which really gave the whole district its name. He was bound to say that there could be very little comparison between the two in regard to productiveness. When he was out there the salt pan belonged to a Mr. Clarkson, who, with his predecessor (Mr. Coleman) had been working it successfully and profitably for over twenty years. Shortly after his visit there was an abnormally heavy rainfall in the Transvaal, which flooded the salt pan to a depth of some 5ft. or 6ft., rendering it impossible for the production of salt to be carried on. Of course, Mr. Clarkson's method of producing the salt was of a more primitive description, consisting of the pumping of brine from shallow shafts, and leaving it to evaporate. When a heavy rainfall came, and the pan got flooded, it was thus impossible to carry on operations, and that was the only reason why the production of salt by Mr. Clarkson came to a standstill. During the last eighteen months or two years they had succeeded in carrying through the acquisition upon favourable terms of this very large property, and a considerable amount of the expenditure appearing in the balance sheet in connection with machinery had reference to the purchase of these works. He had before him an exhaustive report on the whole matter, which the shareholders could inspect at the offices, and he thought they would find, whether they took the scientific analysis of the salt, the financial statistics as to its value, or the markets and the opportunities of selling at a profit, that there was ample reason for expecting to make a very large profit eventually by placing this salt upon the market in the Transvaal. It was not merely for domestic purposes that salt was used there, but in addition to its being required by farmers for their cattle, it was very largely consumed in connection with the gold industry, being an essential of the cyanide process. They had succeeded, in spite of great difficulties, in getting their machinery erected and completed by March 30, but so far they had not been able to produce salt and place it on the market owing to almost all means of transport having been practically destroyed by the rinderpest. When the difficulties of transport had been overcome, they hoped to make this a profitable business. He also wished to add that owing to the dry character of recent seasons the evaporation had very materially diminished the depth of water in the pan, so that apart from other considerations they estimated that in a comparatively short time the pan would practically have resumed its normal condition of almost entire dryness. They, however, would not be satisfied with relying simply upon dry seasons for carrying on operations, and therefore they had constructed a coffer dam and a shaft near the centre of the pan, so that whatever seasons they might have in the future, they would always be able to continue operations.

ANSWERS TO CORRESPONDENTS.

M.B.—You will see the matter has received our attention.

H.S.—We shall have some interesting particulars appearing in due course.

L. and M. (Antwerp).—The annual imports of potassium carbonate are about 1,550 tons. We cannot help you regarding the "Deer" or "Stag" brand of prussiate of soda. Prussiates are seldom spoken of on the market in connection with brands, and our inquiries have proved fruitless.

G.C.C.—It is not published yet. There is usually an interval of about nine months. Otherwise it is only the exception that proves the rule.

RONTGEN RAYS AS DETECTORS OF FRAUD.—The *Electrical Review* of New York says that X-rays are helping out electric railway companies in claims for alleged personal injuries. A man asked a Baltimore company for £700. damages for the alleged breaking of his arm. He was offered £20. as a compromise, and refused it, and was then subjected to the test of the X-ray, which showed that his heavily-banded arm was not broken and never had been. Then he offered to settle for £5., but the Company was no longer in a compromising mood.

Reports of Companies.

ROBURITE EXPLOSIVES CO., LTD.

THE report of the Directors of the Roburite Explosives Company, Limited, for the year ending 31st December, 1896, says:—The profit and loss account shows a loss on the year's trading of £729, reducing the balance brought forward from 1895 to £1,929. Against this amount must be set the expenses of the patent actions brought against the Lancashire Explosives Co. and which amounting to £10,014, have been temporarily placed to a suspense account, but must eventually be charged against revenue. The Directors' attention has also been called to the question of depreciation. In accordance with the articles of association nothing has been written off on this account since the reconstruction in 1891, and any serious attempt to deal with it would entail a very heavy charge on future profits. The sales for the current year are considerably in excess of those for the corresponding period of 1896, and when the provisions of the New Mines Regulation Act come into force, it is hoped that a still greater increase will result, and that the Company will regain, if not improve, the position it held in 1894. If, however, the charges for law costs and accumulated depreciation are met out of profits, it is obvious that there can be no prospect of a surplus for dividends for several years to come. Having regard to these considerations, the Directors believe it would be advantageous to the shareholders to treat these charges as a loss to be written off the capital of the Company. This can be effected either by reconstruction or by reduction of capital with the sanction of the Chancery Division of the High Court of Justice. After taking counsel's opinion, and consulting with the Shareholders' Committee, it has been decided to adopt the latter course as the simplest and the least expensive, and a scheme has been prepared by which the full loss up to December, 1896, is provided for, the patents and goodwill being written down to a reasonable sum, and the valuation of buildings, plant, and the machinery reduced sufficiently to make further provision for depreciation unnecessary so long as all is kept in good order and repair and any necessary renewals are paid for out of revenue. In order to meet this revaluation of assets, the nominal capital of the Company will be reduced from £250,000. in 12,500 cumulative preference shares of £10. each, and 12,500 ordinary shares of £10. each, to £125,000. in 12,500 cumulative preference shares of £5. each, and 12,500 ordinary shares of £5. each. The new preference shares will be entitled to a cumulative preferential dividend of 10 per cent. and the new ordinary shares will take 20 per cent. after payment of such dividend, any further profits being equally distributed without distinction as to class of share. The nett profits of the Company will thus be divided between the preference and ordinary shares in exactly the same proportion as at present.

AFRICAN SALTPETRE CO., LTD.

The third ordinary general meeting of the shareholders of the African Saltpetre Company, Limited, was held last week at Winchester House, Old Broad-street, E.C., under the presidency of Mr. F. P. T. Struben (the chairman of the company).

After explaining how the sum of £17,395, appearing in the prospecting and development accounts had been expended, the Chairman proceeded to relate what had been done by himself and Mr. Provand, a nitrate expert, in regard to valuing the property of the Company, which had been found to be far less valuable than the company were at first led to believe. Leaving England last October, together with Mr. Provand, the latter proceeded at once to the property, but he (the chairman) remained in Cape Town a few days, as it was necessary to see the Cape Nitrate Syndicate, and to obtain some information regarding the properties. He had inspected the properties with Mr. Provand, and they already knew the poor results of their examinations, and the board's sincere regret about it. After the departure of Mr. Provand, he took a further survey of the properties, to see if there were any possibilities of the existence of precious metals and precious stones. Although his efforts were not crowned with much success, he came across conglomerates to all appearances similar to those of Johannesburg. Upon testing they showed no gold, but that did not prove them to be non-gold bearing. In fact, not very far north and south of their properties gold had been found in the rocks.

He saw several deposits, or beds, of asbestos and crocidolite, the former having been worked to a certain extent before the company acquired the properties, and it was just possible that by further development the deposits would become valuable. At present the work done had been but surface. Diamonds had been picked up in the neighbourhood, and whilst he was on the properties a diamond rush took place at no great distance from them. What he saw of the possibilities of minerals being some day found on their farms, or in the neighbourhood, made him come to the conclusion that it would be unwise to dispose of them at present at a great sacrifice, and that was an opinion shared by many well-informed persons on the spot. There was no doubt in his mind, nor in that of Mr. Provand, that at

the present time there were no large deposits of payable which would justify the erection of any proper plant such as proposed erecting to treat them. At the same time there be no doubt that saltpetre did exist even in rich patches, and the soil contained the salts in payable proportions; unfortunately, however, that rich soil is in such inaccessible places, and is distributed, that he could not recommend any attempt being made on a large scale to win the nitrate. At the same time he thought the rinderpest and other troubles were ended there were places individuals might be able to work the nitrate profitably. Mr. in his report, stated:—"I believe a good many thousand tons averaging, say, 5 per cent. nitrate, might be scraped together extends round the base of very many miles of cliffs, and is such that no economical mode of collection is possible. . . . Were to be worked in agriculture or mining, small quantities of nitrate be manufactured for the production of gunpowder for local consumption and the residues, in view of the phosphates that they would be good fertilisers." The directors, up to the time of the 50 tons of crude earth in England, fully believed that the company had a magnificent future before it; they were still the shareholders, having subscribed for one-third of the whole capital, and after receiving the manager's hopeful report they increased their holdings. Mr. Provand, in his report, said:—"the correctness of the assays, reports of which I have seen, and the calculations of quantities of soil and the valuation of the property have been reasonable, and the work of prospecting and of the establishment to have been all that could be desired." If they would see that the manager's report was conscientious and believed by him to be correct, basing his calculations on the made by Mr. Cunningham and checked by the Cape Town. Although they had been deceived as regards the nitrates, and the large estates they possessed were highly mineralised, and strongly recommended that the company should be continued. They had over 51,000 acres of freehold land, representing about 80 square miles, in a country highly mineralised and making great strides. If the land were realised that day, owing to the condition of the country, they would only get half its real value if they adopted a waiting policy they might hope to reap better value than by selling at the present time. The directors had drawn no fees until circumstances had entirely changed, and the expense would be the secretarial duties, etc. The farms had been let at rentals which would more than cover the yearly cost of the company. After realising machinery and stores, and liabilities, the company would have in hand a sum of perhaps which would be available for the purposes of the company and thought to be in the interest of the shareholders at any time for money for prospecting and developing.

The report was adopted unanimously.

MASON AND BARRY, LTD.

The directors' report for 1896 of Mason and Barry, Limited, the total quantity of ore broken and raised at the mine during 1896 was 192,428 tons, as against 185,463 tons in 1895, and during the same period (inclusive of ore from the cement works) amounted to 202,696 tons, as against 186,363 tons in the year. The quantity of ore sold and invoiced for its sulphur value 1896 was 205,206 tons, as against 189,448 tons in 1895. The average of G. M. copper (including Chili bars) during 1896 was £46. against £42. 16s. in 1895, £40. 4s. 6d. in 1894, and £43. 16s. After writing off in the mine books for depreciation of works, the sum of £16,852 and allowing for the variation in the value of the stocks on hand in this country, on the Continent, Portugal on December 31, 1896, and after deducting material expenses and income-tax, the nett profits on working account amounted to the sum of £24,192, to which has to be added the £8,381. received as dividend on La Sabina shares, and the £4,567. from sundries, making together a total profit for the year of £37,141. The stocks of ore and copper precipitate broken and on hand December 31, 1896 (exclusive of the stocks at the cement works), are valued at £227,457, compared with £292,971. in 1895. mine assets in Portugal (after writing off for depreciation) Dec. 31st, 1896, at £395,181., compared with £456,907. in 1895. shown by the profit and loss account, the profit realised on the working amounts to £37,141., to which has to be added the £3,578, brought forward from the year 1895, making together of £40,720, less sundries, £547. and the directors having written sum of £4,500. off La Sabina shares, there remains a balance appropriation of £35,673. From this balance the directors recommend the payment of a dividend of 3s. 6d. per share, and to carry forward the sum of £3,268. to the next account. The company's claim against assets of La Société Industrielle et Commerciale des Métaux has been adjudicated upon by the French court, and the court have decided that the sum of £10,000 received in cash and shown in the

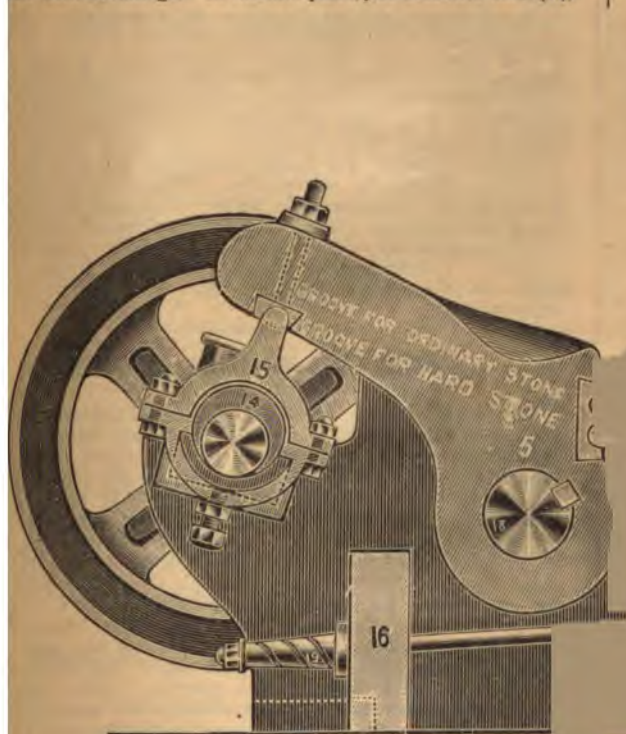
account of the old company for 1890, and the sum of £9,752., received in cash and shown in the profit and loss account of the company for 1891, shall be deducted from the amount of the claim, and not from the dividend on said claim, as contended for by the liquidator of La Société des Métaux. Consequently, in October the liquidator paid to this company the sum of £17,111., which reduces the bad debt shown in the profit and loss account of the company for 1890, after deducting the above-mentioned sums of £9,752., from £56,662. to £19,798., exclusive of the costs incurred in prosecuting the claim since 1889 and loss of interest. The special resolution confirmed at the extraordinary meeting held on May 26th, 1896, and authorising the reduction of the dividend from £840,000. to £630,000., was sanctioned by the Court on November 21st, 1896, and of the total sum of £185,172. returned to the shareholders, over £180,000. has been already paid.

DIVIDENDS.

NER-PARTINGTON PAPER PULP CO.—The directors of this company have declared an interim dividend for the half-year ending 31st at the rate of 10 per cent. per annum. The dividend for the corresponding period of last year was at the rate of 8 per cent. per

CHAMPION LEVER STONE-BREAKER.

The stone-breaker shown in the illustration we reproduce, is capable of speaking largely for itself, and, its being made by Messrs. J. & W. Goss, of Leicester, will also save any need for further recommendation. There are, however, one or two points that may be noted with advantage. In the first place, the eccentric boss (14)



is in halves, so that wear can be taken up to any reasonable extent, thus increasing the life of this part of the machine.

The toggle-plate (4), it will be seen, is adjustable, and, though it is not strange to say so, is breakable. The advantage gained by this apparently negative virtue is that, if a piece of iron, steel, or any other article gets between the jaws, the plate gives way, and can be removed for 2s. or 3s., thus saving the breakage of other more valuable parts of the machine. Being adjustable, the movements can be altered to suit very hard or medium stone, manganese ore, &c.

It is necessary to effect the change is to move the toggle from one position to the other, as indicated by the directions on the lever in the illustration.

The position of the driving wheels is low, so that the machine is more compact than those makes in which arms or links are used. The

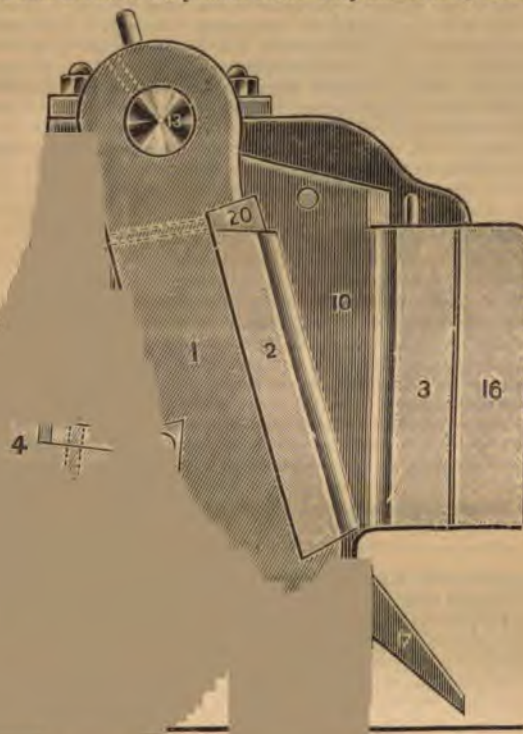
wearing parts are also greatly reduced, both in number and the price of renewals. Friction is consequently minimised, with a resulting saving in lubricants. Owing to these advantages, the machines can be worked at the top of a building, a feature that cannot fail to be appreciated by many.

Selected Correspondence.

SEWAGE TREATMENT—THE LAND BOGEY.

(To the Editor of the Manchester Guardian.)

Sir,—Some of your correspondents have alluded to a conference of representatives from several public bodies in the district convened by the Salford Corporation (C.T.J. 506, p. 95) and I see a few suggestions have been given as to what should be discussed at this Conference. If I am rightly informed, the object, or at any rate the principal object, of the conference is to get evidence to support a petition to the Local Government Board praying for an amendment or extinction of the land purchase clause which gives authority to refuse borrowing powers for sewage treatment purposes, unless the scheme includes the purchase of land. If I may be allowed to add my suggestion to those already given, I think that if the discussion is confined to the one point I name it will better serve the interests of the Salford Corporation and also of the other public bodies, than debating in detail something which, although of very great importance, would be of no value unless this land purchase clause were abolished; for as the law stands at present, whatever scheme a public body may decide upon, unless it includes land for filtration purposes, borrowing powers will be refused. Everybody interested in sewage matters now knows that the Salford Corporation have a scheme for the purification of their sewage; whether it is a good one or a bad one does not affect the point at issue. They cannot carry out their scheme



because they are refused borrowing powers, the scheme not including the purchase of land. Their wisest and, in fact, only reasonable course—a land filtration scheme being out of the question—is to use every endeavour to bring about an alteration in the law, so that an approved scheme can be carried out and the public at large benefited by an improved and satisfactory effluent. It may be a wise policy on the part of Salford to hasten a crisis by using a cheap and imperfect method of treatment, and until a further development has taken place it seems premature to invite censure upon them while in ignorance of their policy. A crisis must take place before any permanent benefit can be effected, and the sooner it takes place the better for all concerned.

To help to further the interests of Salford and other public bodies, I would suggest the discussion of this question from a ratepayer's point of view. Why was this land purchase clause inserted in the first

instance? The only rational answer to this appears to be—in the ratepayers' interests. Government fixed a standard of purity which could be attained by filtration through land, and twenty years ago it was doubtless thought it could not be attained in any other way; therefore, to ensure the ratepayers' money not being uselessly spent, this compulsory land purchase clause was inserted. I cannot conceive of any other valid reason for its insertion. The public in general are protected by other provisions in the Rivers Pollution Act, which fix the standard of purity, and authorities have been created with powers to see these provisions carried out. If my surmise as to its object is correct, may I ask, Does it benefit the ratepayer and protect him against useless expenditure? Has it ever been a generally beneficial clause in any way? If not, then I think there is sufficient ground for ratepayers to demand an alteration. Without looking very far, these questions may safely be answered in the negative, for land filtration in ninety-nine cases out of a hundred is absolutely impracticable, either alone or in conjunction with chemical treatment, with precipitation and settling. Land is a very closely packed filter bed, and it most effectually extracts impurities. We must not, however, overlook the fact that if a filter extracts impurities it retains them, and the better the filter the more it retains, and the sooner it becomes foul and unfit for use. The only way that land can get rid of the impurities collected is by the growth of herbage or some other suitable form of vegetation—a very slow process at the best, necessitating a large area to be used. If the information supplied by these scientists who have made a special study of the formation and development of bacteria in connection with sewage treatment is correct, then land filtration by natural means and artificial filtration with the use of chemicals arrive at the same result in a directly opposite method. The sewage passing through land moves very slowly, giving time for those micro-organisms which develop with such remarkable rapidity to consume within themselves the oxidisable organic matter in solution upon which they thrive and live, the solids being left on the surface of the land and the filter bed being sufficiently close to obstruct the passage of these microbes when formed. The idea that land oxidised the sewage in its passage through is evidently a mistake, and must now be abandoned; and this being so, it will be a waste of time and expense to treat sewage chemically before passing it on to the land. With artificial filtration and chemical treatment of sewage we aim at oxidising the oxidisable organic matter in solution, and not at consuming it with microbes. These micro-organisms, we are told, cannot live or come into existence in the presence of oxygen; so if the oxidisable matter is got rid of by oxidation, we get the same result as slow filtration through land, but in exactly the opposite direction.

No one can say what amount of land is required for the treatment of a given quantity of sewage, as it entirely depends upon the nature of the land and the amount of work it is given to do, so that if once launched upon a land filtration scheme the ratepayer will never know when he has done spending money, and it may be taken for granted that land filtration is impracticable unless a large area of suitable land is available, or unless a very weak sewage has to be purified, in which case something cheaper than the purchase of land would serve the purpose. If the members of the conference can show other satisfactory methods of treatment their case will be all the stronger; but whether this be so or not, it is unjust to force expenditure upon something which cannot be used, and in the case of Salford this would be so.—I am, &c.,

JAMES B. PETRIE.

Tunhill House, Milnrow, April 29, 1897.

ADULTERATION IN MANCHESTER.—It is stated in the annual report of the City Analyst that in 1885, of 780 samples of milk that were taken and tested, 19 per cent. were adulterated; in 1896 there were 1,662 samples taken, and only 4.5 per cent. were adulterated. As to articles of food, the results had been equally satisfactory. It appeared that the more samples they took the less adulteration there was. If they continued to push the matter forward with vigour, they would stamp out adulteration in the city. Manchester and Salford headed the list for the country with regard to the number of samples taken. The work had been done at an average cost of £650. per year for the past ten years.

THE ANGLO-AMERICAN ARBITRATION TREATY.—A special telegram to the *Times*, dated May 5th, states: "By 43 yeas to 26 nays the Senate this afternoon refused to ratify the amended treaty of arbitration between Great Britain and the United States. The only thing which excites surprise is the smallness of the vote which is a direct refusal of the Senate to follow the lead of its Committee on Foreign Relations, whose new chairman, Mr. Davis, of Minnesota, a Republican, has used all his influence, first to wreck the treaty and then to ratify the wreck. In this policy Mr. Lodge and other Republicans joined, while Mr. Morgan and other extremists voted no. This ends all hope of arbitration while the Senate remains constituted as at present."

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are active, especially 90's, no doubt on account of depreciation to 2s., but 50/90's remain firm at 2s. 3d. to 2s. 4d. Crude acids are firm, and in some cases an advance has resulted—crude stands at 2s. 7d.; crystals (40%) are firm at 8¼d., while liquid is 2d. to 1s. 3d. Naphthas are rather quiet, but keep steady in 1s. 1d. for crude and 1s. 8d. for solvent. Creosote is rather without change in price however. Anthracene still rules low very little doing. Pitch may be quoted 22s. 6d., f.o.b. East Coast. Sulphate of ammonia is very uncertain. The demand report for the week has again fallen off, the month having opened very quiet. It is inclined to fall, closing nominally at £7. 5s. for Beckton, outside makes £7. 8s. 9d., Liverpool £7. 12s. 6d., Hull £7. 10s. Leith £7. 10s., all prompt. Nitrate of soda quiet.

MISCELLANEOUS CHEMICAL MARKET.

In alkalies the market, generally, is steady, with fair business for export, and prices all round are firm. Bleaching powder good request at £6. 10s., f.o.r., softwoods, and £6. 10s. to £6. 15s. f.o.b. Liverpool, Tyne, etc. Ammonia alkali remains quiet. For white caustic soda there is still active inquiry, but is no alteration in values, current quotations being as follows: Liverpool, 77%, £9. 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d. Chlorates of potash and soda more freely offered, and there is no change in quotations which remain at 4d. and 4½d. per lb. respectively. The sulphate of copper has further declined with the lessened demand is now quoted £16 15s. f.o.b. Sulphur firm, at £4. 15s. Saltcake in good request, at 19s. to 20s., in bulk, f.o.r. Acetate of lime firm, at £5, c.i.f. United Kingdom ports; gypsum 5s. per ton. White sugar of lead and acetate of soda rather easier prices are lower. White powdered arsenic, £23. 5s. to £23 according to brand. For potash, caustic and carbonate, there is continued good inquiry at current rates. Prussiate of potash firm to 54d. per lb. Cyanide, 10½d. per lb. Sal ammoniac, firsts, to 33s. and seconds to 31s. per cwt. Muriate of ammonia £19. Other ammonia salts and ammonia liquor have, generally, a tendency. Permanganate of potash rather easier. In the general demand for miscellaneous chemicals, there is as yet no evident improvement.

REPORT ON MANURE MATERIAL.

There continues to be fair demand for prompt and early delivery of material being ample, prices are barely maintained. There is rather more inquiry for mineral phosphates, but manure materials being still busy making their deliveries are in no hurry to make prices ahead. Consequently actual business for the U.K. has been on a limited scale. The quotation for 75/80% Florida phosphate rock per unit, in cargoes, c.i.f. to U.K., shipment up to Spring, 1897, for good lines, 5¼d. would probably be business. The quotation for South Carolina River rock, and for 58/63% Algerian, remains at unit, and that for 63/70% Algerian, 5¼d. per unit, c.i.f. to good ports. There is nothing fresh to report in River Plate bones. From there would be sellers at £3. 15s. per ton, and this price would be accepted for fine quality Bombay bone meal. For ordinary 1 meal, £3. 12s. 6d. is nearest value in quantity. Nitrate of soda to arrivals is rather easier, and ordinary quality may now be 7s. 10½d. per cwt.; 8s. per cwt. required for fine quality. There is considerable enquiry for dried blood, and the quotation is 7s. 6d. per gross weights, delivered f.o.b. Liverpool.

THE METAL MARKET.

LONDON, WEDNESDAY.—Fig iron steady: Scotch warran at 44s. 2½d., Middlesbrough 39s. 1½d. cash, and hematite 4 Copper firm: Chili bars, G.O.B.'s and G.M.B.'s, closed at £47. to £47. 13s. 9d. cash, and £47. 16s. 3d. to £48. 1s. 3d. three months. Tin steady: Straits closed at £59. 15s. to £60. 5s. cash, and £60. 15s. three months; Australian, £61.; English, £63. 10s. to £64. Lead dull: Spanish, £11. 15s.; English, £11. 17s. 6d. Silesian spelter, ordinary, £17. 5s. Nickel, 1s.

£30. 10s. to £31. Quicksilver: First hands, £7. 7s. 6d.;
nds, £7. 6s. 6d. Copper shares steady: Cape, $2\frac{1}{4}$ to $2\frac{3}{8}$;
 $2\frac{1}{16}$ to $2\frac{3}{16}$; Libiola, $2\frac{1}{16}$ to $2\frac{1}{8}$; Mason and Barry, $2\frac{3}{8}$ to
Tinto, $24\frac{1}{16}$ to $25\frac{1}{16}$; Tharsis, $5\frac{3}{8}$ to $5\frac{1}{4}$.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil is dull, and price inclined to fall: Benin has been
17. 10s. Olive keeps fairly steady as regards price, but the
oiling is small. Linseed is the turn easier, but is now being
lily for 15s. 3d. to 16s. 6d. per cwt., Liverpool makes, in
sks. Cottonseed is not promising; the market is quiet,
lders remain fairly steady at 15s. 3d. to 16s. per cwt. Castor
n very active, and a good business has been done in good
alcutta at 3d. In consequence of this relief the market has
markedly, closing with good seconds Calcutta at $3\frac{1}{4}$ d. (paid),
re French $3\frac{1}{8}$ d. to $3\frac{1}{4}$ d. per lb., Bombay $2\frac{3}{8}$ d. and Madras
llow is a slow market, without any change in values. Resin
firm, with a small business doing. Spirits of turpentine are
t continue to move fairly well at 21s. 3d. to 21s. 6d. per cwt.,
roleum is practically unchanged, values remaining $5\frac{1}{4}$ d. to
merican and $5\frac{1}{4}$ d. to $5\frac{3}{8}$ d. per gallon for Russian refined.
JRS.—Prices are steady, and practically without change.
Oxfordshire, common, £10., medium, £12., best, £15,
t, common, 40s.; medium, 50s., best, 60s.; Welsh, best,
nds, 50s., and common, 18s.; Irish, Devonshire, 40s. to
ch, J.C., 65s. Umber: 40s. to 45s. White lead, £16.
unchanged. Venetian red, £6. to £10. Cobalt: Pre-
le, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common,
um, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

L PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

—During the week the markets for linseed and cotton oils have
d a flatness and a fall in values, but at the time of writing
is firm at about last week's values, and cotton oil flat at the
e stocks of seed in Hull on April 30 were: Linseed, 17,605
against March 31st, 22,335 qrs.; cottonseed, 765 tons,
90 tons; rapeseed, 2,000 qrs., as against 4,002 qrs.
rts during the month have been: Linseed, 33,905 qrs., as
rch, 88,783 qrs.; rapeseed, 988 qrs., as against 13,891 qrs.;
t, 19,262 tons, as against 20,465 tons. The present quotations
: Linseed oil firm, spot 13s. rather buyers; forward May-
gs. 6d. per cwt. naked; last four months, 14s. 3d. Boiled
£1. to £1. 10s. per ton extra. Refined cotton oil flat:
spot; forward June-August, 13s. 6d. sellers; crude spot,
filtered refined from £1. per ton extra. Casks £1., and
arrels £1. 10s. per ton extra. Castor oil, pressed here,
ell supported, as against foreign made oil, $2\frac{3}{4}$ d. per lb.;
re French, $3\frac{1}{4}$ d. per lb.; Calcutta, in cases, 4d. per lb.
id Malaga olive oils, £31. per ton; other sorts cheaper.
£15. to £18. per ton. Oleines from £16. to £18. per
entine 22s. per cwt. Italian olive oil soaps, £16. per ton,
Yorkshire grease, £7. 10s. to £9 per ton.
—Linseed cakes quiet: 95% pure, £6. 12s. 6d. per ton;
£5. 12s. 6d.; Russians, £6. Cotton cakes steady: Best
3. 15s.; seconds, £3. 13s. 9d. per ton. Rape cakes

S.—The situation and prices are unaltered.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

the past week matters have not improved in the chemical
The condition and tendencies of the weather have been
uperation, these having continued unsettled to a degree. All
the industry look forward hopefully to the long deferred
really genial weather, of which we have had none now for
Prices rather tend downwards, from the inactivity of business
owth of stocks; but there is as yet no very marked drop,
the case of sulphate of copper which is now procurable at
r possibly less in some quarters. There is no new movement
ch oil and solid paraffin departments, all of which hold not
fully to a waiting game, at nominal prices, except lubricants,
ain healthy. Sulphate of ammonia has remained idle at about
s quotation.

rices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne,
48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali,
5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s.
gow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d.,

60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleach-
ing powder, 35/37°, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English,
refined, £17. and boracic acid, £28. nett, Glasgow; bicarbonate of
soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool;
bichromate of potash, $4\frac{1}{2}$ d. nett, for Scotch and English deliveries (for
export, $4\frac{1}{4}$ d. nett, f.o.b. Glasgow); bichromate of soda, $3\frac{1}{4}$ d. nett, for
Scotch and English deliveries (for export, $3\frac{1}{2}$ d. nett, f.o.b. Glasgow);
chlorate of potash, $4\frac{1}{2}$ d. less 5%, any port; nitrate of soda, 8s.
to 8s. 3d.; sulphate of ammonia, £7. 12s. 6d. prompt, f.o.b.
Leith; salammioniac, first and second white, £35. and £33. nett,
any port; sulphate of copper, £17. 5s. less 5%. Liverpool;
paraffin scale, hard, $1\frac{1}{4}$ d. to $1\frac{1}{2}$ d., and soft, $1\frac{1}{2}$ d. per lb.; paraffin
wax, 120° semi-refined, $1\frac{1}{4}$ d. to 2d. per lb.; paraffin spirit
(naphtha), $6\frac{1}{2}$ d. per gallon; paraffin oil (burning) No. 1, $6\frac{1}{4}$ d., and
crystal, $6\frac{1}{2}$ d., at Glasgow and other big centres, for Scotch buyers
(English sales $\frac{1}{2}$ d. to $\frac{3}{4}$ d. lower); ditto (lubricating) 865° £5. to
£5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7.
Week's imports of sugar at Greenock were 6,800 bags beet refined, and
3,317 bags beet unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue unchanged, and business generally is only quiet,
though shipments recently have been somewhat better. Soda crystals,
£2. 12s. 6d. per ton, gross weight, locally. Caustic, 76/77°, £8 15s.;
70°, £7. 10s. per ton. Sulphur scarce at £5. per ton.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per
ton, nett; caustic soda, 76/77°, £9. per ton, nett; do., 70°, £7. 10s.
per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton,
nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4.
12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%,
£3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett,
do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett,
hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt.
kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton,
nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d.
per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton,
gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight;
chlorate of potash, $5\frac{1}{4}$ d. per lb., less 6%; pearl hardening,
£3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d.
per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium,
refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6.
per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett;
carbonate of alumina, £30. per ton, nett; aluminate of soda, £30.
per ton, nett.

SALT.—South Durham salt firm at 9s. per ton f.o.b. Tees.

COALS.—There is a fairly good demand for best steam and bunker
coals. Coke continues very firm at 15s. to 16s. per ton, for both local
and export consumption. To-days prices are:—Best Northumbrian
steam, 8s. 6d. to 8s. 9d. per ton; second qualities, 7s. 6d. to 7s. 9d. per
ton; small steam, 3s. 9d. to 4s. per ton. Household coals 10s. to
11s. per ton. Gas coals, dull, 7s. 3d. to 8s. per ton. Coke,
in demand at 15s. to 16s. per ton.

New Companies.

Blaina Colliery Co., Ltd.—CAPITAL, £40,000., in shares of £10.
each. This company has been formed to carry on the business of
colliery proprietors, cake and patent fuel manufacturers, under an
agreement with E. R. Fisher, J. W. Rogers, and E. S. Williams.
Registered office: 4, Bath-lane, Swansea. The subscribers to the
memorandum of association are:—Mrs. L. M. Rogers, 24, Woodland-
terrace, Swansea; Mrs. M. R. Williams, Mount-pleasant, Swansea;
E. S. Williams, Ferryside, Swansea, merchant; J. W. Rogers,
Woodland-terrace, Swansea, accountant; E. R. Fisher, Cross Hands,
Llanelli, engineer; A. Goldworthy, Ferryside, Swansea, accountant;
Mrs. E. S. Fisher, Nantglass, Cross Hands, Llanelli.

Hockley Chemical Co., Ltd.—CAPITAL, £10,000., in £1. shares.
This company has been formed to take over the business known as the
Hockley Chemical Co., now carried on by G. Tubbs, R. Griffin, E. N.
Brown, and J. Hands, at Hockley Hill and 64, Vyse-street, Birming-
ham, and to trade as drysalers, chemical manufacturers, and oil
merchants. The subscribers to the memorandum of association are:—
G. Tubbs, 85, Hamstead-road, Handsworth, drysalter; R. Griffin, 4,
Louisa-place, Prescott-street, Birmingham, drysalter; E. N. Brown,
39, Pershore-road, Birmingham, drysalter; J. Hands, 20, William-
street, Lozells, Birmingham, drysalter; P. Galloway, 53, Hall-road,
Handsworth, factor; Mrs. M. H. Tubbs, 85, Hamstead-road, Hands-
worth; Mrs. H. L. Griffin, 156, Soho Hill, Handsworth.

IMPORTS OF CHEMICAL PRODUCTS AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending April 24th.

Acetate of Lime—
U. States, 264 bgs. Lister & Biggs

Acetic Acid—
Holland, 50 pks. R. W. Greeff & Co.

" 904 A. & M. Zimmermann

" 100 Philipps & Graves

Germany, 38 R. G. Hall & Co.

Holland, 50 H. Lambert

Alkali—
France, 100 c. J. Barber & Co.

Alum—
Holland, 174 cks. 435 pks. Ohlen-schlager Bros.

" 62 R. W. Greeff & Co.

Antimony—
Germany, 17 t. Union L. Co., Ltd.

Antimony Ore—
Turkey, 40 t. H. Grey, jun.

France, 100 Vivian, Younger & Co.

Arsenic—
Germany, 6 cks. Brit. Anti-Fouling C. Co.

Asbestos—
Germany, £18 Craven & Co.

Canada, 620 W. Byford

" 320 Furness, Withy & Co.

Barium Chloride—
Germany, 20 cks. Petri Bros.

Barium Hydrate—
Belgium, 130 c. W. G. Blagden

Barytes—
Belgium, 167 pks. Burrell & Co.

" 61 cks. A. Zumbach & Co.

Holland, 60 J. L. Lyon & Co.

Bleaching Soda—
Germany, 335 pks. H. Lambert

Camphor—
Germany, 15 cs. C. S. Lovell

" 2 brls. L. & I. D. Jt. Co.

" 67 tubs. S. Figgis & Co.

" 69 Hale & Son

Caoutchouc—
Sydney, 40 c. McIlwraith & Co.

Holland, 70 Prop. Bull. Wf.

Germany, 1 R. G. Hall & Co.

Zanzibar, 3 L. & I. D. Jt. Co.

Natal, 10

Germany, 4 Wallace Bros.

France, 7 H. Johnson & Sons

Madagascar, 77 Major & Field

E. Indies, 154 Ross & Deering

" 1 L. & I. D. Jt. Co.

" 31 Stewart, Hall & Co.

" 77 Ralli Bros.

Madagascar, 41 Procter Bros.

" 40 Hammond & Co.

Penang, 199 Butler's Wf. Ltd.

U.S. Col., 48 Prop. Bull. Wf.

Carbolic Acid—
Germany, 10 pks. H. Lambert

" 50 J. G. Back

Castor Oil—
Belgium, 60 brls. J. T. Morton

E. Indies, 126 cks. Cayzer, Irvine & Co.

Italy, 25 cs. Major & Field

Caustic Potash—
Germany, 1 cs. W. J. Crook

France, 14 drs. Petri Bros.

" 110 W. E. Cole

Chemicals (otherwise undescribed)

Holland, £45 H. Lorenz

Belgium, 143 Société John Cockerill

Germany, 28 T. H. Lee

" 115 H. Lambert

" 10 R. W. Greeff & Co.

Belgium, 80 Furst Bros.

Holland, 14 T. H. Lee

Germany, 1,163 A. & M. Zimmermann

Holland, 7 Daniel & Co.

Germany, 10 W. B. Barber

Cream of Tartar—
Italy, 8 cks. Thames & T.

France, 1 W. C. Bacon & Co.

Holland, 10 kgs. Kirkpatrick & Co.

France, 5 B. & F. Wf. Co.

Spain, 15 W. C. Bacon & Co.

Italy, 50 Howard & Sons

Dextrine—
Germany, 200 bgs. Hernu, Peron & Co.

" 14 L. & I. D. Jt. Co.

Germany, 250 W. Balchin

" 30 M. D. Co.

Dyestuffs—
France, 9 bgs. B. & F. Wf. Co.

Italy, 711 B. Jacob & Sons

" 207 cks. Thames S. T. & L. Co.

Cochineal—
Canaries, 16 bgs. Sperling & Williams

Extracts—
Denmark, 1 ck. City Coml. Wf. Ltd.

France, 130 B. & F. Wf. Co.

Austria, 300 A. J. Humphery

France, 5 200 bxs. T. H. Lee

" 50 L. J. Levinstein & Sons

Belgium, 25 Leach & Co.

Germany, 10 cs. J. Norrenberg & Co.

Denmark, 5 Sorensen & Co.

E. Indies, 60 Furness, Withy & Co.

Fustic—
B. W. L., 20 t. S. Dobree & Sons

" 15 Jamaica Fruit L. & T. Co.

Gambler—
Germany, 313 bgs. E. Boustead & Co.

Singapore, 466 Beresford & Co.

Indigo—
E. Indies, 18 cts. Binny & Co.

" 47 S. Fitze & Co.

" 10 A. B. Curtis & Co.

Belgium, 1 Société John Cockerill

E. Indies, 17 P. Macfadyen & Co.

" 148 J. Finlay & Co.

Austria, 11 F. W. Helgers & Co.

E. Indies, 30 J. Owen

" 34 Croysdale & Co.

" 34 Ross & Deering

" 16 F. Claydon & Co.

" 6 Parsons & Keith

" 56 J. Hatton Hall & Co.

" 56 L. & I. D. Jt. Co.

Logwood—
B. W. L., 29 t. S. Dobree & Sons

Myrabolams—
E. Indies, 1,356 bgs. Anderson, Weber & Co.

" 669 L. & I. D. Jt. Co.

" 670 H. K. Daniels

" 666 J. Greig

" 2,719 A. B. Curtis & Co.

" 685 W. Shelcott

" 3,415 Hoare, Wilson & Co.

" 670 Dalton & Young

Shumac—
Italy, 50 bgs. W. Shelcott

" 20 Blundell, Spence & Co.

" 50 Carter, Paterson & Co.

" 1,580 1,511 pks. J. Kitchen

" 300 Beresford & Co.

Tanners' Bark—
Belgium, 30 t. F. A. Hughes

Natal, 25 L. & I. D. Jt. Co.

Melbourne, 76 A. & W. Nesbitt

Turmeric—
E. Indies, 100 bgs. Dalton & Young

Valonia—
A. Turkey, 53 t. Hicks, Nash & Co.

" 10 F. Claydon & Co.

" 50 J. T. Greenstreet

Farina—
Belgium, 30 bgs. J. Barber & Co.

Holland, 100 J. Owen

" 10 H. Lorenz

Flux Skimmings—
Belgium, 23 t. Cartledge & Co.

Gamboge—
China, 30 cs. Chapman, Anthony & Co.

Glucose—
U. States, 20 pks. 300 c. Williams, Torrey & Co.

" 50 300 Deering & Robottom

" 50 250 Seaward Bros.

" 750 750 G. Clark & Son

" 500 500 Robinson, Son & Co.

Germany, 40 396 B. S. S. Co.

U. States, 7,000 2,000 J. Knill & Co.

" 2,250 2,250 Pearce, Pelly & Co.

" 500 500 Bellamy's Wf. Co.

" 1,250 1,250 Trier, Meyer & Co.

" 250 250 J. Budgett & Sons

" 50 50 G. Hedges & Son

" 50 125 Morton & Co.

France, 200 200 L. Norman & Co.

" 100 100 J. Barber & Co.

U. States, 30 310 W. E. Cole

" 250 250 R. Johnson & Co.

" 250 250 Thames S. T. & L. Co.

" 500 500 C. S. Lovell

" 3,322 9,113 R. G. Hall & Co.

Glue—
Germany, £119 Phillipps & Graves

France, 85 Duche & Sons

" 24 Morison, Pollexfen & Co.

Germany, 105 Bennett S. S. Co.

" 27 L. & I. D. Jt. Co.

France, 12 T. & W. Farmiloe

" 24 Mory & Co.

Holland, 140 Morison & Co.

Belgium, 228 L. & N. W. Rly.

Germany, 40 J. Barber & Co.

France, 45 M. D. Co.

" 140 Prop. Hay's Wf.

" 64 L. & N. W. Rly.

Holland, 107 Burnett Bros. & Sons

Germany, 500 Carey & Sons

" 80 hds. T. H. Lee

Lamp Black—
Sweden, 240 cs. Pinchin, Johnson, & Co.

U. States, 10 brls. L. & I. D. Jt. Co.

" 210 M. Ashby, Ltd.

" 80 hds. J. Melvin

Lead Acetate—
Germany, 19 cks. R. W. Greeff & Co.

" 5 A. J. Luke & Co.

" 6 cs. D. M. Carnegie

Lead Nitrate—
Holland, 11 cks. J. Barber & Co.

Manure—
Belgium, 175 t. Anglo-Contl. G. Wks.

France, 25 Chemical Works Co.

Germany, 17 A. J. Luke & Co.

" 38 Humphery & Co.

Methyl Alcohol—
Belgium, 11 cks. W. S. Barber

Mica—
E. Indies, £50 Union L. Co.

" 200 L. & I. D. Jt. Co.

" 995 W. M. Smith & Sons

Molasses—
U. States, 50 cks. 232 c. W. G. Jacobs

B.W.I., 41 410 Wilkinson & Gaviller

U. States, 527 3,213 W. Balchin

Nitre—
France, 850 cks. T. H. Lee

Ochre—
France, 5 cs. Becker & Wagner

Spain, 92 brls. Henningway & Co.

Oxalic Acid—
Norway, 20 pks. W. Caudery & Co.

Holland, 10 R. W. Greeff & Co.

Phosphate Rock—
Belgium, 160 t. Anglo-Contl. G. Wks.

France, 400 W. E. Cole

Algeria, 1,300 A. Ford & Co.

France, 200 A. Hunter & Co.

Aruba, 385 C. M. Bayer

Pitch—
Germany, 62 brls. Berlandina Bros. & Co.

N. Russia, 800 Fellows, Morton, & Co.

Plumbago—
Ceylon, 246 cks. G. J.

" 385 J. Thred

Germany, 100 brls. Brit. Ant

" 3 bgs. B.

Ceylon, 610 Torr

Potassium Carbonate—
France, 50 c.

Germany, 220 W.

France, 40 S. Deva

Holland, 200

Potassium Chloride—
Germany, 503 bgs. Anglo-Contl.

Holland, 16 cks. H. Johnson

Potassium Permanganate—
Holland, 10 cks. Care

" 5 G. Ra

Potassium Sulphate—
Germany, 35 bgs. Bessler, V.

Belgium, 31 drs. Elk

Pyrites—
Pomaron, 1,079 t. C. L. Vas

Spain, 1,482 Naylor, Benn

Quicksilver—
Spain, 5,500 flasks. N. M. R.

Italy, 500 btls. L. & I. I.

Rosin—
France, 20 brls. Lucas & Co.

Rosin Oil—
France, 250 brls. C. Pi

Saltpetre—
E. Indies, 1,417 bgs. Perkins & Co.

Belgium, 85

Soda—
Belgium, 500 c. Lan

Holland, 1,340 R.

Belgium, 1,000 J. W.

Sodium Acetate—
Italy, 46 cks. Prop. H.

Starch—
Germany, 390 cs. Has

Holland, 1,240 Little & J.

Belgium, 100 Becker & Co.

" 100 C. Tennant

U. States, 150 bgs. E. Olyett

Holland,

10 pks.	Lunham & Moore
133	Taylor Bros
12 cks.	W. Harrison & Co.
29	Burrell & Co.
20	W. A. Rose & Co.
20	A. & M. Zimmermann
36	D. Storer & Sons
42 brls.	Leach & Co.
11 cks.	H. Lambert
20	G. Farmiloe & Sons
2	J. Harrison
46	Spies Bros. & Co.
1,877 pks.	Becker & Wagner
134	C. S. Lovell
2,400	Henderson, Craig, & Co.
206	"
5,232	Moreton Cox Bros. & Co.
400	L. G. Bratt & Co.
2,630	Moreton Cox Bros. & Co.
506	E. J. & W. Goldsmith
40	M. D. Co.
90	E. F. Callister & Son
10	Becker & Co.
272	Phillipps & Graves
63 t.	J. Greig
175 brls.	M. Ashby, Ltd.
155	"
49	"
25	Burrell & Co.

LIVERPOOL.

ending April 22nd.

10 balloons	
1 ck.	Cunard S. S. Co., Ltd.
21 cks.	
33	50 bgs.
1,392 bgs.	W. B. Dickinson
1 brl.	
6 cs.	
30	
84 brls.	
6 pks.	
100 brls.	
100 brls.	
53 cks.	
1 cs.	
2 bskts.	
32 cks.	
33 cs.	
50 sks.	Brown Bros. & Co.
900 bxs.	
42 cbts.	
5 cs.	
7 cs.	Cunard S. S. Co., Ltd.
5 bls.	
2 cks.	
12 bgs.	A. Barbosa & Co.
1 cs.	
2,717 bgs.	
100 sks.	
3,305 bls.	125 bgs. G. Essayan & Co.
100 bgs.	A. Bamaun & Co.
1,000 sks.	Cunard S. S. Co., Ltd.
6,500	Browne, Geveke & Co.

Gelatine—	Antwerp,	5 cs.	J. T. Fletcher & Co.
Glucose—	New York,	100 brls.	T. M. Duche & Sons
"	"	855	
Glue—	Fiume,	200 bgs.	Ihler & Sankey
"	Hamburg,	1 cs. 14 bskts.	
"	Rotterdam,	6	
Iron Oxide—	Gijon,	672 bgs.	
Limestone—	Antwerp,	4 cs.	J. T. Fletcher & Co.
Mineral White—	Genoa,	70 bgs.	
Molasses—	New Orleans,	824 brls.	
Paint—	Boston,	11 cs.	Bahr, Behrend & Ross
"	Marseilles,	40	G. H. Fletcher & Co.
Paraffin Scale—	Rangoon,	82 bxs.	
Phosphate—	Ghent,	1,000 bgs.	
Plumbago—	Genoa,	5 bgs.	
Potash—	Sierra Leone,	1 bx.	
Pumice Stone—	Messina,	100 cs.	
Pyrites—	Huelva,	1,947 l.	Matheson & Co.
Rosin—	Boston,	1,514 brls.	
Saltpetre—	Calcutta,	2,791 bgs.	Ralli Bros.
"	Hamburg,	337	
Soap—	Genoa,	100 bxs.	
"	New York,	176 cs.	
"	Naples,	277	
"	B. Ayres,	1	
"	Boston,	10	J. Thompson
"	Jaffa,	4 bdls.	G. W. Wheatley & Co.
"	Rotterdam,	1	
"	Antwerp,	20 dms.	
Soapstone—	Genoa,	300 bgs.	W. Harrison & Co.
"	"	200	Geo. G. Blackwell, Sons & Co.
Starch—	New York,	900 bgs.	
"	Newport News,	1,800	200 sks
"	Rotterdam,	50 cs.	
Stearine—	Antwerp,	5 bgs.	
Sulphate of Lime—	Trieste,	1 ck.	F. Leyland & Co.
Tallow—	B. Ayres,	230 pps.	369 cks. 40 hds.
Tartaric Acid—	Rotterdam,	8 cks.	
Treacle—	Bordeaux,	20 pks.	
Ultramarine—	Rotterdam,	4 cks.	
Yarnish—	New York,	10 brls.	20 cs. W. A. Warren
"	Rotterdam,	2 cks.	
Verdigris—	Bordeaux,	3 cks.	
Waste Salt—	Hamburg,	2,032 bgs.	
White Lead—	Rotterdam,	21 cks.	
Wood Pulp—	Boston,	211 bls	
"	Rotterdam,	184	
"	Christiania,	20 cs.	H. Tyrer & Co.
Zinc Oxide—	New York,	120 brls.	
"	Rotterdam,	20 cks.	
"	Antwerp,	30	26
Zinc White—	Rotterdam,	50 cks.	

MANCHESTER.

Week ending April 24th.

Acetic Acid—	Rotterdam,	31 blns.	
Alizarine—	Rotterdam,	12 cks. 1 bx. 41 brls.	
Ammonium Acetate—	Rotterdam,	5 brls.	
Ammonium Chloride—	Marseilles,	16 cks.	
Aniline Colours—	Rotterdam,	10 cs. 30 brls.	
Annatto—	Bordeaux,	12 hds.	J. & P. Hutchison
Barium Chloride—	Hamburg,	24 cks.	
Barytes—	Rotterdam,	200 bgs. 27 cs.	
"	Antwerp,	50	
Betanaphthol—	Rotterdam,	1 brl.	
Caustic Soda—	Antwerp,	21 dms.	
Colours—	Hamburg,	4 cs.	
"	Rotterdam,	7 bxs. 1	26 brls.
"	Antwerp,	12 cks. 31	
Dimethylaniline—	Rotterdam,	2 cks.	
Farina—	Stettin,	400 bgs.	
"	Hamburg,	650	
Glue—	Stettin,	10 cks.	50 bgs.
"	Hamburg,	10	
"	Rotterdam,	2 cs. 53	
Indigo—	Rotterdam,	1 chst.	
Lead Acetate—	Hamburg,	15 cks.	
Limestone—	Antwerp,	6 crts.	
Mineral White—	Bordeaux,	300 bgs.	J. & P. Hutchison
"	Fiume,	50	
Ochre—	Marseilles,	26 cks.	
Pitch—	Rotterdam,	13 cks.	
Potash—	Boulogne,	21 dms.	
Potassium Chloride—	Hamburg,	10 cks.	
Pumice Stone—	Messina,	20 bgs.	
Saltpetre—	Hamburg,	13 pks.	
Shumac—	Palermo,	104 bgs.	112 bls.
Starch—	Rotterdam,	190 cs.	
"	Antwerp,	100	
Sulphuric Acid—	Rotterdam,	10 cks.	
Tar—	Marseilles,	100 cks.	
Tar Waste—	Rotterdam,	12 cks.	
Tartar—	Rotterdam,	10 cks.	
Tartaric Acid—	Rotterdam,	16 cks.	
Waste Salt—	Hamburg,	533 cks. and qty.	
Whiting—	Gothenburg,	50 bgs.	
Wood Pulp—	Copenhagen,	225 bls.	H. B. Wood
"	Hamburg,	360 bdls.	
"	Gothenburg,	2,278 bls.	
Zinc Oxide—	Rotterdam,	25 brls.	
Zinc Sulphate—	Rotterdam,	6 brls.	

HULL.

Week ending April 24th.

Acids—	Hamburg,	5 cks.	Wilson, Sons, & Co., Ltd.
---------------	----------	--------	---------------------------

Alumina Sulphate—	Rotterdam,	100 bgs.	W. & C. L. Ringrose
Aluminium—	New York,	40 bxs.	Wilson, Sons, & Co., Ltd.
Barytes—	Bremen,	22 cks.	
"	Antwerp,	37	Bailey & Leatham, Ltd.
"	Ghent,	20 bgs.	
"	"	33 cks.	Hutchinson & Son
Caoutchouc—	Rotterdam,	1 ble.	Hutchinson & Son
Castor Oil—	Genoa,	65 cs.	Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undesignated)	Dunkirk,	232 pks.	Wilson, Sons, & Co., Ltd.
"	Rotterdam,	5 cks.	Hutchinson & Son
"	Hamburg,	80	Wilson, Sons, & Co., Ltd.
"	Antwerp,	99 pks.	
"	"	11	
"	"	61	
Cod Oil—	Christiania,	32 brls.	Wilson, Sons, & Co., Ltd.
Colours—	Aalesund,	27	"
"	Rotterdam,	16 cks. 1 cs.	Wilson, Sons, & Co., Ltd.
"	Stettin,	9	"
"	Antwerp,	16	"
"	Dunkirk,	13 brls.	
"	Rotterdam,	47 cks. 11 cs. W. & C. L. 37 pks.	10 brls. 4 bxs. Ringrose
Dyestuffs—	Alizarine		
"	Rotterdam,	2 brls.	W. & C. L. Ringrose
Valonia	Smyrna,	711 bgs.	
Farina—	Harlingen,	200 bgs.	W. & C. L. Ringrose
"	Ghent,	20	Hutchinson & Son
Glucose—	New York,	600 cks.	
"	Rotterdam,	50 bgs.	Hutchinson & Son
Glue—	Dunkirk,	9 bls.	Wilson, Sons, & Co., Ltd.
"	Rotterdam,	1 ck.	Hutchinson & Son
"	Stockholm,	4 bgs.	Wilson, Sons, & Co., Ltd.
"	Christiansund,	2 brls.	
"	Antwerp,	3 cks.	Bailey & Leatham, Ltd.
Guano—	Antwerp,	642 bgs.	Bailey & Leatham, Ltd.
Mica—	Copenhagen,	1 cs.	Bailey & Leatham, Ltd.
Minium—	Rotterdam,	19 cks.	Hutchinson & Son
Naphtha—	Reval,	3 brls.	Wilson, Sons, & Co., Ltd.
Naphthol—	Rotterdam,	2 cks.	Hutchinson & Son
Ochre—	Marseilles,	249 cks.	
Paint—	New York,	195 cs.	Wilson, Sons, & Co., Ltd.
"	"	1	
Phosphate—	Ghent,	1,000 bgs.	
Plumbago—	Leghorn,	250 bgs.	
Pumice Stone—	Leghorn,	53 pks.	Wilson, Sons, & Co., Ltd.
"	"	14 cs. 20 brls.	
"	Messina,	153 pks.	Wilson, Sons, & Co., Ltd.
"	"	5 cs.	
Saltpetre—	Antwerp,	135 bgs.	Wilson, Sons, & Co., Ltd.

Soap — Marseilles, 20 cs. Wilson, Sons, & Co., Ltd. Naples, 47 " " Starch — New York, 200 bgs. Wilson, Ghent, 160 cs. Sons, & Co., Ltd. Odessa, 200 " " Antwerp, 120 " " Ghent, 77 Hutchinson & Son Rotterdam, 69 " " Stearine — Antwerp, 81 pks. Wilson, Sons, & Co., Ltd. Tallow — Antwerp, 56 brls. Wilson, Sons, & Co., Ltd. Dunkirk, 26 cs. " " Tartar — Bordeaux, 4 cs. Rawson & Robinson Tartaric Acid — Rotterdam, 9 cs. Hutchinson & Son Treacle — New York, 327 brls. Wilson, Sons, & Co., Ltd. Turpentine — Bordeaux, 10 cs. Rawson & Robinson Ultramarine — Rotterdam, 2 cs. Hutchinson & Son " 4 W. & C. L. Ringrose Varnish — New York, 10 cs. Wilson, Sons, & Co., Ltd. " 28 brls. " " Waste Salt — Hamburg, 97 bgs. Furley & Co. White Lead — Rotterdam, 98 cs. Hutchinson & Son Amsterdam, 18 " " Antwerp, 17 Bailey & Leatham, Ltd. Zinc White — Rotterdam, 5 cs. Hutchinson & Son	Dyestuffs — Alizarine Rotterdam, 6 cs. J. Rankine & Son Aniline Rotterdam, 2 cs. 7 cs. J. Rankine & Son Aniline Salts Rotterdam, 34 cs. J. Rankine & Son Argols Bordeaux, 49 cs. 20 bgs. Logwood Jamaica, 329 t. Mucklow & Co. Farina — Delfzijl, 600 bgs. Glucose — New York, 200 brls. Waddell & Bryson " 1,593 Glue — Rouen, 24 cs. 10 brls. Genoa, 40 bgs. Hamburg, 15 " " Rotterdam, 10 cs. J. Rankine & Son Gypsum — Rouen, 200 bgs. Lamp Black — Gothenburg, 5 cs. New York, 50 brls. Manganese — Rotterdam, 6 cs. J. Rankine & Son Mineral White — Marseilles, 120 bgs. Ochre — Marseilles, 66 cs. " " Rouen, 8 " " Paint — Amsterdam, 2 dms. J. Rankine & Son Plumbago — Genoa, 300 bgs. Potash — Hamburg, 37 cs. Potassium Chlorate — Marseilles, 31 cs. Pyrites — Huelva, 1,102 t. Tharsis Co. Rosin — New York, 255 brls. Soap — Fiume, 97 cs. Marseilles, 1 " " Starch — New York, 200 bgs. Baltimore, 1,600 sks. Antwerp, 80 cs. Stearine — Marseilles, 71 bgs. Rotterdam, 17 cs. J. Rankine & Son Talc — Genoa, 10 bgs. Tartar — Bordeaux, 5 cs. Treacle — New York, 50 brls. Ultramarine — Rotterdam, 2 cs. J. Rankine & Son	White Lead — Rotterdam, 12 cs. " 19 J. Rankine & Son Whiting — Rouen, 24 cs. Wood Pulp — Fiume, 306 brls. Skein, 50 " " Hamburg, 66 " " Christiania, 856 25 cs. Zinc Oxide — Hamburg, 57 cs. Zinc White — Rotterdam, 35 cs. J. Rankine & Son TYNE. <i>Week ending April 24th.</i> Alum Earth — Hamburg, 58 cs. Tyne S. S. Co. Antimony — Hamburg, 184 cs. Tyne S. S. Co. Antimony Ore — Antwerp, 2,000 bgs. Tyne S. S. Co. 100 t. " " Barytes — Amsterdam, 47 cs. W. Swanston & Sons Antwerp, 250 bgs. Tyne S. S. Co. Cod Oil — Bergen, 10 brls. Colours — Hamburg, 1 cs. 1 brl. Tyne S. S. Co. " 8 cs. 2 " " Antwerp, 21 crts. Tyne S. S. Co. Limestone — Antwerp, 21 crts. Tyne S. S. Co. Linseed Oil — Amsterdam, 10 cs. W. Swanston & Sons Phosphate — Beaufort, 2,756 t. Langdale's S. C. Chemical M. Co. Saltpetre — Hamburg, 24 cs. Tyne S. S. Co. Soap — Rotterdam, 5 cs. Tyne S. S. Co. Starch — Rotterdam, 132 cs. Tyne S. S. Co. Tartaric Acid — Rotterdam, 4 cs. Tyne S. S. Co. Varnish — Antwerp, 2 brls. Tyne S. S. Co. Wood Pulp — Hamburg, 2 brls. Tyne S. S. Co. Christiania, 1,000 " " Gothenburg, 122 pks. Zinc Ashes — Antwerp, 1 brl. Tyne S. S. Co. Zinc Oxide — Antwerp, 8 cs. Tyne S. S. Co. GOOLE. <i>Week ending April 21st.</i> Alizarine — Rotterdam, 86 cs. 1 cs. Alkali — Calais, 3 cs. Alum — Rotterdam, 21 bgs.	Aniline — Hamburg, 1 cs. Rotterdam, 752 cs. 87 1 pk. Caoutchouc — Antwerp, 18 brls. Coal Products (otherwise under) Boulogne, 2 cs. Colours — Hamburg, 20 cs. Dyestuffs (otherwise under) Boulogne, 17 cs. 1 cs. Farina — Hamburg, 500 bgs. Delfzijl, 2,872 " " Harlingen, 100 " " Glucose — Hamburg, 32 cs. Glue — Rotterdam, 40 bgs. Guano — Boulogne, 1 brl. Indigo — Rotterdam, 2 brls. Lead Acetate — Hamburg, 25 cs. Logwood — Belize, 423 t. Jamaica, 1,474 " " Potash — Hamburg, 10 cs. 1 pk. Dunkirk, 10 cs. 1 pk. Calais, 1 " " Antwerp, 2 " " Saltpetre — Hamburg, 43 cs. Soda — Rotterdam, 1 cs. Starch — Ghent, 50 cs. Stearine — Antwerp, 23 bgs. Tartar — Rotterdam, 2 cs. 1 pk. Antwerp, 7 pk. Waste Salt — Hamburg, 280 cs. 176 t. Wood Pulp — Rotterdam, 156 brls. GRIMSBY. <i>Week ending April 24th.</i> Caoutchouc — Hamburg, 1 brl. 4 cs. Chemicals (otherwise under) Hamburg, 8 cs. 2 cs. 21 pk. Colours — Hamburg, 242 cs. Rotterdam, 11 " " Antwerp, 20 " " Dyestuffs (otherwise under) Dieppe, 35 cs. Farina — Hamburg, 400 bgs. Indigo — Rotterdam, 1 cs. Pitch — Dieppe, 10 cs. Plumbago — Hamburg, 1 cs. Starch — Rotterdam, 50 cs.
---	--	--	---

GLASGOW.

Week ending April 29th.

Acetone — Hamburg, 9 dms. Asbestos — Genoa, 45 pks. 5 cs. Barytes — Rotterdam, 255 cs. J. Rankine & Son Castor Oil — Antwerp, 27 cs. Colours — Rotterdam, 2 cs. 2 brls. J. Rankine & Son Rouen, 1 " " Hamburg, 2 " 1 ck. Amsterdam, 2 " J. Rankine & Son Cream of Tartar — Barcelona, 15 cs. Tarragona, 5 "	Acetone — Hamburg, 9 dms. Asbestos — Genoa, 45 pks. 5 cs. Barytes — Rotterdam, 255 cs. J. Rankine & Son Castor Oil — Antwerp, 27 cs. Colours — Rotterdam, 2 cs. 2 brls. J. Rankine & Son Rouen, 1 " " Hamburg, 2 " 1 ck. Amsterdam, 2 " J. Rankine & Son Cream of Tartar — Barcelona, 15 cs. Tarragona, 5 "
---	---

EXPORTS OF CHEMICAL PRODUCTS

OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending April 28th.

Acids — Bomby, 3 cs. £11 Madras, 11 pks. 34 Jamaica, 5 " 13 Alum — Hobart, 4 cs. £14 Otago, 2 t. 12 Dunedin, 1 " 6 Ammonia — Cape Town, 12 cs. £13 Ammonium Carbonate — Dunkirk, 1 t. 8 cs. £36	Ammonium Chloride — Sydney, 50 cs. £240 Ammonium Sulphate — Hamburg, 20 t. £155 Antwerp, 67 " 530 Demerara, 45 " 124 Rotterdam, 50 " 390 Trinidad, 51 " 7 c. 397 Martinique, 45 " 375 Barbadoes, 30 " 14 250 Ostend, 211 " 0 1,664 Anhydrous Ammonia — Cape Town, 6 cydms. £60
--	---

Barium Chlorate — Rotterdam, 3 bgs. £12 Bleaching Powder — Pt. Elizabeth, 1 t. £15 E. London, 4 c. 6 Bombay, 8 " 25 Carbolic Acid — Sydney, 10 dms. £18 Hong Kong, 30 " 17 Brisbane, 20 " 5 Singapore, 12 " 8 Carbonic Acid Gas — Jersey, 52 tubes £20	Caustic Soda — Sydney, 4 t. 2 c. Auckland, 10 " 7 Philadelphia, 67 " 7 Napier, 5 " 12 E. London, 7 " 12 Cape Town, 4 " 7 Pt. Elizabeth, 4 " 7 Chemicals (otherwise under) Singapore, 22 cs. Hamburg, 25 cs. Bosnia, 24 " " Rotterdam, 1 " " Gibraltar, 2 " " Adelaide, 2 " " Dunkirk, 13 cs. Calcutta, 2 "
--	--

acid—		
	4 cs.	£24
	4 c.	27
	1	6
	10	65
	1 ck. 5 kgs.	58
	4	153
	24	690
	2 brls.	24
	15	88
	1	29
	10 c.	60
	1	3
	1	6
ducts—		
	2 cks.	£56
	1 cs.	18
	120 brls.	£550
	2 cs.	£29
ite Salts		
hia, 560 bgs.		£136
ha		
53 brls.		£150
		23
haline		
beth, 8 cks.		£36
ia, 10 kgs.		6
	340 cks.	£85
	3	5
	200 brls.	60
	420 t.	615
	1,960	2,450
	660 bgs. 924	10
	610	
	200 t.	255
	N., 5,100 bgs.	848
	9	13
lan Blue		
m, 4 cks.		£15
at Naphtha		
urch, 6 cs.		£68
an, 40 dms.		£69
sburg, 838 rnts.		545
on, 8		31
sburg, 250		2
rk, 50 cks.		75
ay, 470		10
beth, 400		15
ors, 1,000		538
	810	60
il		
250 brls.		£138
ducts (other wise undes.)—		
e, 25 dms.		£24
ulphate—		
	10 t.	£186
	31 5 c.	578
	25	450
	25	463
	124	2,294
	6	5
	40	660
f Tartar—		
	4 cs.	£7
	10 c.	40
i, 10 kgs.		40
n Bromide—		
le, 5 cs.		£66
tants—		
re, 35 pks.		£24
	15 cks.	75
	5	35
	100 dms.	42
ne, 12 cs.		16
wn, 9		25
	6	18
	50	28
ko, 5		5
	120 L.	£570
es, 100		800
rk, 20 t.		£65
phia, 57	10 c.	300
le, 49	5	125
que, 25		252
o, 20		125
nes, 101	10	745
mas, 8	17	65
ic Chloride—		
	8 c.	£89
e—		
	15 dms.	£27
	5 cs.	15
rk, 148		455
ic Acid—		
ai, 15 cs.		£12
icid—		
	34 carboys	£68

Oxalic Acid—		
Melbourne, 9 cks.		£30
Phosphorus—		
Wellington, 4 cs.		£42
Potash—		
Wellington, 1 t. 8 c.		£52
Potassium Cyanide—		
Sydney, 2 c.		£168
Melbourne, 2 c.		756
Townsville, 16 t. 15	90 cs.	1,155
Pt. Elizabeth, 200		1,493
Rockhampton, 10		93
Potassium Prussiate—		
New York, 16 cks.		£254
Lisbon, 5 brls.		26
Rotterdam, 17		236
Calcutta, 8 kgs.		23
Amsterdam, 1		23
Rouen, 2		23
Madras, 50 cs.		464
Saltpetre—		
Rangoon, 10 c.		£11
Madeira, 8		11
Dunedin, 1 t.		22
Brisbane, 1		20
Wellington, 1		21
Sheep Dip—		
Durban, 550 dms.		£190
Adelaide, 16 c.		22
Hobart, 1		26
Launceston, 3 t.		10
Odessa, 8		10
Sydney, 1 cs.	20 cks.	40
New York, 2	5	94
E. London, 25 dms.		5
Pt. Elizabeth, 1,750		250
Soda—		
New York, 1 t. 18 c.		£21
Soda Ash—		
Auckland, 22 t. 3 c.		£83
Soda Crystals—		
Cape Town, 1 t. 13 c.		£6
Fremantle, 10	11	23
Sodium Acetate—		
Brisbane, 1 t.		£24
Sodium Bicarbonate—		
Calcutta, 15 c.		£60
Natal, 1 t. 5		11
Otago, 2		13
Sodium Nitrate—		
St. Kitts, 19 t. 9 c.		£159
Sodium Prussiate—		
Rotterdam, 1 ck.		£10
Sodium Salicylate—		
Bombay, 1 c.		£11
Sodium Silicate—		
Auckland, 2 t. 9 c.		£9
Sodium Sulphate—		
Ghent, 50 t.		£75
Fremantle, 2		5
Sulphur—		
Pt. Elizabeth, 4 t. 9 c.		£51
Lisbon, 450 brls.		£113
Durban, 2	2	15
Sulphuric Acid—		
Pt. Elizabeth, 25 cs.		£17
Fremantle, 16 dms.		23
Colombo, 10		15
Durban, 9		10
Shanghai, 20		12
Cape Town, 50	10 carboys	45
Superphosphates—		
Terceira, 2 t.		£11
Tartaric Acid—		
Bombay, 14 cs.		£53
Durban, 4		110
Melbourne, 20 kgs.		39
Wellington, 7 c.		36
Calcutta, 7		12
Brisbane, 2		12

LIVERPOOL.

Week ending April 28th.

Acetic Acid—		
Lisbon, 2 t.		£16
Acids—		
Rosario, 3 q		£7
Alum—		
Bahia, 18 c.		£5
Alexandria, 7 t.		35
Montreal, 5		25
Ammonia (Liquid)—		
Antofagasta, 1 c.		£3
Ammonium Carbonate—		
St. Petersburg, 10 t. 15 c.		£301
Naples, 7		12

Vera Cruz, 2		5
Hamburg, 1		25
Halifax, 10		14
Leghorn, 6		8
Ammonium Chloride—		
Larnaca, 4 c.		£5
Copenhagen, 1 t.		52
Galatz, 12		21
Bourgas, 19	3 q.	35
Salaora, 3		5
Trieste, 1		31
Rosario, 5		8
Alexandria, 1	2	34
Philadelphia, 17	16	3
Genoa, 2	12	2
Danzig, 5		5
Beyrout, 1		33
Calcutta, 3	15	117
Montreal, 3	19	77
Ammonium Sulphate—		
Huelva, 10 t.		£31
Barcelona, 8	13 c.	61
Philadelphia, 75	12	1 q.
Honolulu, 311	5	2,696
Demerara, 113	3	879
Valencia, 77	15	2
Las Palmas, 17		136
Bleaching Powder—		
Ancona, 6 cks. 20 brls.		
Antwerp, 20		20 bxs.
Bombay, 20		40
Boston, 372		40
Cape Town, 70		70
Genoa, 11		80
Libau, 35		70
Montreal, 35		70
Naples, 10		10
New York, 10		10
Tampico, 10		10
Boracic Acid—		
Montreal, 1 t. 13 c.		£53
Borax—		
Dunedin, 1 t. 5 c.		£25
Sydney, 1		20
Quebec, 1	7	24
Antofagasta, 3		8
Yokohama, 1	7	1 q.
Valparaiso, 5		4
B. Ayres, 1	9	27
Christiania, 12	3	12
Stettin, 7	1	143
Rotterdam, 5	6	101
Antwerp, 5		5
Genoa, 4	10	2
Melbourne, 2		37
Hamburg, 7		122
Montreal, 7	2	3
Malta, 20 kgs.		143
Vera Cruz, 1	15	1
Algoa Bay, 5		5
Galatz, 10		9
Tampico, 2	17	1
Copenhagen, 4	11	1
Calcium Chloride—		
Sydney, 5 t. 4 c.		£10
Melbourne, 10		23
Christchurch, 3		2
Odessa, 30		6
Carbolic Acid—		
Rotterdam, 10 t. 4 c.		£622
Newport News, 19	16	1 q.
Philadelphia, 5	13	350
Baltimore, 4	6	250
Demerara, 12	1	25
Bombay, 5		18
Montreal, 1		75
Constantinople, 9	1	18
Ghent, 1	5	85
Genoa, 2	18	3
Caustic Soda—		
Adelaide, 115 dms.		
Amsterdam, 20		3
Ancona, 57		5
Barcelona, 75		163
Bari, 60		215
Bordeaux, 215		545
Boston, 100		100
B. Ayres, 150		160
Bremen, 160		34
Callao, 464		167
Dunkirk, 165		18
Fairwater, 18		3
Fiume, 100		100
Galatz, 625		150
Genoa, 150		15
Gibraltar, 3		3
Gutajewsky, 100		100
Hamburg, 625		100
Hio, 150		15
Honolulu, 15		3
Huelva, 3		3
Ibrail, 35		18
Konigsberg, 18		27
Leghorn, 27		27

Lisbon, 20	15	50 cks.
Malaga, 1		1
Malta, 8		8
Marseilles, 35		35
Melbourne, 138		138
Mollendo, 10		10
Montreal, 65		65
Naples, 35		35
N. Orleans, 300		300
New York, 150		150
Odessa, 300		300
Oporto, 33		33
Para, 20		20
Penang, 170		170
Pernambuco, 180		180
Philadelphia, 6.5		6.5
Rotterdam, 17		17
San Francisco, 275		275
San Sebastian, 45		45
Seville, 100		100
Stettin, 66		66
Sydney, 65		65
Valencia, 50		50
Valparaiso, 50 kgs.		50 kgs.
Venice, 10		10
Vigo, 15		15
Yokohama, 100		100
Chemicals (otherwise undes.)—		
Libau, 3 c.		£5
Copenhagen, 5		8
Stockholm, 2 t. 10		70
Christiania, 2	15	3 q.
Trieste, 5		12
Antwerp, 3		5
Hamburg, 5	10	135
Naples, 10		16
China Clay—		
Barcelona, 100 cks. 200 bgs.		
Bombay, 202		2,519
Boston, 2,519		40
Naples, 40		80
Newport News, 80		150
New York, 150		40
Philadelphia, 40		100
Piraeus, 100		1,166
Portland, M., 1,166		
Coal Products—		
Aniline Colours		
Alexandretta, 2 cs.		
Portland, M., 4 cks.		
Aniline Dyes		
Quebec, 2 kgs.		
Aniline Oil		
Barcelona, 19 cks.		
Fiume, 5 dms.		
Malaga, 1		
Philadelphia, 15		
Aniline Salts		
Alexandretta, 1 kg.		
Bombay, 5 cs.		
Boston, 40		
Genoa, 20 cks.		
Malaga, 1		
Creosote		
Lisbon, 85 cks.		
Creosote Oil		
Copenhagen, 30 brls.		
Lisbon, 250		
N. Orleans, 498 cks.		
Pitch		
Galatz, 5 t. 8 c.		
Talcahuano, 400 brls.		
Tar		
Galatz, 4 t. 18 c.		
Ibrail, 6		2
Copper Sulphate—		
Rodosto, 5 c.		£5
B. Ayres, 7 t. 3		129
Oporto, 23	16	410
Fiume, 20	3	308
St. John, N.B., 2	1	3 q.
Konigsberg, 2	2	1
Vera Cruz, 15	1	2
Havre, 10	2	1
Nantes, 58	19	3
M. Video, 4	10	1
Halifax, 1	7	21
Antwerp, 20		390
Trieste, 4	18	80
Copenhagen, 1		16
Paris, 29	16	413
Messina, 6	17	2
Genoa, 94	10	1
Tampico, 15		2
Odessa, 8	1	137
Marseilles, 19	17	1
Rotterdam, 1	19	3
Cette, 454	5	3
Galatz, 27	8	405
Naples, 34	13	365
Bari, 49	5	764
Venice, 42	3	3
Ancona, 44	17	689
Leghorn, 59	7	987
Bordeaux, 371	7	6,251

Oil—	
4 brls.	
8 cks.	
123 cks.	
amine—	
23 cks.	
Vax—	
10 bls.	
10 bgs.	
1 ck. 2 pns.	
4	
ca bonate—	
20 cks.	
52 pks.	
6 dms.	
55 bgs.	
63 brls.	
ide—	
5 cks.	

HULL.

ending April 24th.

28 cks.	
12	
n Sulphate—	
48 bgs.	
125	
Powder—	
50 cks.	
da—	
17 dms.	
34	
(otherwise undescribed)	
214 cks.	
5	2 cs. 45 dms.
10	
1	
30	
7	1 350 slbs.
	20 pks.
254 bgs.	
1 ck 28	13
20	
3	2
18	
7	30 10
25	134 20

m—	
1 cs.	
d Oil—	
1-539 c.	
100	
7	
102	
212	
100	
404	
853	

(otherwise undescribed)	
45 cks.	
50	
12 bgs.	
20 cs.	
2	

Oil—	
36 c.	
72	
and, 42	
1,863	
180	
277	
17	
108	
153	
11	

White—	
50 bgs.	
1 ck.	
19	

Colours—	
14 cks. 1 cs.	
41 3	8 dms.
5	1 3
3	
32	

Ghent,	7
Gothenburg,	2
Hamburg,	15
Hango,	2
Rotterdam,	12
Stavanger,	39
Stettin,	77
159 t.	1
Pitch—	
Antwerp,	100 t.
Dunkirk,	250
Tallow—	
Hango,	18 cks.
Tar—	
Amsterdam,	5 cks.
Antwerp,	25
Bremen,	28
Rotterdam,	4
Stettin,	5
Treacle—	
Bergen,	15 cks.
Whiting—	
Amsterdam,	1 cs.
Antwerp,	2 cks. 1
Bremen,	1
Christiania,	1
Drontheim,	1 dm.
Gothenburg,	2

GLASGOW.

Week ending April 29th.

Ammonia (Liquid)—	
B. Ayres,	£139
Ammonium Sulphate—	
Castellon,	112 t. 1 1/4 c.
Santos,	10 4 1/4
Cullera,	567 11 1/4
Demerara,	81 9 1/2
Trinidad,	27 13 1/4
Bayonne,	10 2
Valencia,	1,222 16 1/4
Hamburg,	10 3

Bichrome—	
Dunedin,	£36

Bleaching Powder—	
Sydney,	7 t. 3 1/4 c.

Boracic Acid—	
Japan,	£34

Carbolic Acid—	
Rotterdam,	£115
Brisbane,	£121. 138.

Castor Oil—	
Adelaide,	£37
Sydney,	55

Coal Products—	
Benzol	
Rotterdam,	£1,037
Russia,	£350
Bayonne,	£312. 108.

Naphtha	
Lyons,	£48

Pitch	
Italy,	£500
Russia,	£75
Trieste,	188
Venice,	486
Hombay,	£73. 158.
Canada,	£187
U S A.,	389

Konigsberg,	122 t.
-------------	--------

Tar	
Christiania,	20 brls.
Konigsberg,	301

Tar Oil	
Hamburg,	9 c.
Konigsberg,	150 brls.

Coal Products (otherwise undes.)—	
France,	£550. 168.

Copper Sulphate—	
Barcelona,	1 t. 12 1/4 c.

Dried Blood—	
Rouen,	23 t. 12 1/2 c.

Dyestuffs (otherwise undescribed)	
Barcelona,	£31
Gothenburg,	33

Extracts—	
Barcelona,	£78
Boston,	170

Gelatine—	
Canada,	£243

Glucose—	
Cape Town,	11 c.

Lamp Black—	
Calcutta,	18 1/4 c.

Linseed Oil—	
B. Ayres,	1 t. 9 1/4 c.
Macassar,	1 5

Malta,	2 1 1/4
Rio de Janeiro,	4 3 1/4
China,	2 8 1/4
Brisbane,	2
Canada,	21 13 1/4

Logwood—	
Canada,	£1.6

Magnesium Sulphate—	
Christiania,	£31

Manganese Oxide—	
New York,	£105

Manure—	
Cullera,	100 L. 3 1/2 c.
Trinidad,	87 0
Valencia,	74 8 1/2

Paint—	
B. Ayres,	£104
Calcutta,	225
China,	£29. 158.
Macassar,	£101
Cape Town,	71

Painters' Colours—	
Inagua, W.I.,	£20
Brisbane,	165
Bundaberg,	105
Canada,	£376. 108.
Hobart,	£73
Montreal,	80
Sydney,	£731. 198.

Paraffin Wax—	
Bordeaux,	£66
Pt. Elizabeth,	160
Christiania,	60
Potterdam,	35
Barcelona,	140
Fiume,	394
Japan,	750
Paris,	30
Rouen,	24
Russia,	281
Valencia,	97
Venice,	40
Cape Town,	72

Potash Salts—	
Mexico City,	5 t. 16 c.

Potassium Bichromate—	
Rotterdam,	£207
Barcelona,	408
Japan,	16 t. 3 1/2 c.
Turkey,	198
Sydney,	1 1 1/4

Potassium Chloride—	
Rotterdam,	£10

Potassium Prussiate—	
New York,	7 t. 4 1/4 c.
Rouen,	2 13 1/4
U S A.,	£887. 1cs.

Sheep Dip—	
B. Ayres,	£77

Soap	
Trinidad,	10 t. 17 1/2 c

Sodium Bichromate—	
Lyons,	5 t. 1 1/2 c.
Rouen,	4 15 1/2

Starch—	
Barcelona,	£37
Rotterdam,	4 t. 7 c.

Sulphuric Acid—	
Natal,	£20
Demerara,	50
Port of Spain,	£37. 108.
Rangoon,	2 t. 6 1/4 c.

Tallow—	
Rotterdam,	£165

Treacle—	
Christiania,	5 t. 4 1/2 c.
Gothenburg,	20 2 1/4

Ultramarine—	
U.S.A.,	£36

Varnish—	
China,	£27

White Lead—	
B. Ayres,	£106

Zinc Ashes—	
Rotterdam,	£227

Anthracene—	
Rotterdam,	68 t. 3 c.
Antimony—	
Rotterdam,	5 t. 10 c.
Barcelona,	1

Arsenic—	
Barcelona,	2 t. 2 c.

Barium Binoxide—	
Rouen,	10 t. 13 c.

Barium Carbonate—	
Hamburg,	11 t.
Rouen,	25

Bleaching Powder—	
Bergen,	15 t. 11 c.
Antwerp,	3 16
Lisbon,	15 3
Riga,	50 7
Gothenburg,	20 4
Rotterdam,	9 9
Gefle,	45 4

Caustic Soda—	
Bergen,	3 t. 10 c.
Antwerp,	25 3
Hamburg,	14 7
Riga,	6 17
Stockholm,	9 5

Litharge—	
Antwerp,	1 t. 1 c.
Hamburg,	4 3
Stockholm,	9 3

Magnesia—	
Antwerp,	2 c.
Hamburg,	18
Lisbon,	5

Manure—	
Valencia,	31 t.

Paint—	
Bergen,	14 c.
Hamburg,	1 t. 1

Soda—	
Randers,	15 t. 18 c.
Christiansund,	3 1
Rotterdam,	32 3
Stockholm,	42 16

Sodium Sulphate—	
Herre,	250 t.
Gothenburg,	5 1 c.

Superphosphates—	
Valencia,	220 t.

Varnish—	
Christiansund,	2 t. 10 c.
Hamburg,	1 4

White Lead—	
Lisbon,	3 t. 1 c.
Rouen,	5

GOOLE.

Week ending April 21st.

Benzol—	
Rotterdam,	24 cks.

Chemicals (otherwise undescribed)	
Amsterdam,	25 cks.
Antwerp,	20

Coal Products (otherwise undes.)—	
Amsterdam,	2 cks.
Antwerp,	3
Boulogne,	25
Harlingen,	1
Rotterdam,	6 5 cs.

Colours—	
Antwerp,	1 ck.
Hamburg,	6 4 cs.
Harlingen,	3

Dyestuffs (otherwise undescribed)	
Ghent,	26 bgs
Hamburg,	1 ck.

Pitch—	
Antwerp,	600 t.
Dunkirk,	399

GRIMSBY.

Week ending April 24th.

Alkali—	
Port au Prince,	385 dms.

Chemicals (otherwise undescribed)	
Dieppe,	3 cks.

Coal Products (otherwise undes.)—	
Dieppe,	139 cks. 1 cs.
Hamburg,	2

Colours—	
Hamburg,	9 cks.

TYNE.

Week ending April 24th

Alkali—	
Rotterdam,	6 t. 6 c.

Alum Waste—	
Horsens,	10 t. 1 c

Ammonium Chloride—	
Hamburg,	10 c.
Stockholm,	2 t. 10
Barcelona,	2 2

PRICES CURRENT.

WEDNESDAY, MAY 5TH, 1891

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

Acetic, 25% and 40%	per cwt.	5/10½ & 8/9
Glacial	per lb.	40/-
Arsenic S.G., 2000°	per lb.	1 4 0
Fluoric	per lb.	0 0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10
(Cylinder), 30° Tw.	per lb.	0 3 0
Nitric 80° Tw.	per lb.	0 0 1½
Nitrous	per lb.	0 0 1½
Oxalic	per lb.	0 0 3½
Phosphoric, 1750°	per lb.	0 0 11½
Picric	per lb.	0 0 11
Sulphuric (fuming 50%)	per ton	15 10 0
(monohydrate)	per ton	5 10 0
(Pyrites, 168°)	per ton	3 0 0
(free from arsenic, 145°)	per ton	1 5 0
Sulphurous (solution) S.G. 1025	per ton	1 7 6
Tannic (pure)	per lb.	0 1 2½
Tartaric	per lb.	0 1 0
Arsenic, white powdered	per ton	23 10 0
Alum (loose lump)	per ton	4 10 0
Alumina Sulphate (pure)	per ton	4 2 6
Aluminaferric	per ton	2 3 6
Aluminium (Ingot metal 98/99¼%)	per cwt.	7 17 6
Ammonia, Anhydrous	per lb.	0 1 3
" 880=28° B.	per lb.	0 0 2¾
" =24° B.	per lb.	0 0 1¾
" Carbonate	per lb.	0 0 3
" Muriate	per lb.	18 7 6
" (sal-ammoniac) 1st & 2nd	per cwt.	33 3 31/-
" Nitrate	per ton	33 0 0
" Phosphate	per lb.	0 0 4½
" Sulphate (grey) London	per ton	7 8 9
" (grey) Hull	per ton	7 10 0
Aniline Oil (pure)	per lb.	0 0 7¼
Aniline Salt	per lb.	0 0 6¾
Antimony	per ton	30 15 0
" (tartar emetic)	per lb.	0 0 9
" (golden sulphide)	per lb.	0 0 10
Barium Chloride	per ton	6 12 6
" Carbonate (native)	per ton	3 10 0
" Sulphate (native levigated)	per ton	42 6 10 65/-
Bleaching Powder, 35%	per cwt.	6 7 6
" Liquor, 7%	per lb.	3 10 0
Bisulphide of Carbon	per lb.	12 0 0
Chromium Acetate (crystal)	per lb.	0 0 6
Calcium Chloride	per ton	2 2 6
China Clay (at Runcorn) in bulk	per ton	15/- 10 30/-
Coal Tar Products and Dyes:—		
Alizarine (artificial) 20%	per lb.	0 0 6¾
Magenta	per lb.	0 3 4
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0 0 7
Benzol, 90's	per gallon	0 2 0
50/90	per gallon	0 2 4
Carbolic Acid (crude 60°)	per gallon	0 2 7
" (crystallised 40°)	per lb.	0 0 8¼
" (liquid 95/97%)	per gallon	0 1 3
Cresosote (ordinary)	per lb.	0 0 2
" (filtered for Lucigen light)	per lb.	0 0 2½
Crude Naphtha 30% @ 120° C.	per ton	0 1 1
Grease Oils, 88° Tw.	per ton	2 15 0
Pitch, f.o.b. Liverpool or Garston	per ton	1 2 6
Solvent Naphtha, 90% at 163°	per gallon	0 1 8
Copper	per ton	47 5 0
" Sulphate	per ton	16 15 0
" Oxide (copper scales)	per ton	44 10 0
Glycerine (crude)	per lb.	33 0 0
" (distilled S.G. 1250°)	per lb.	65 0 0
Iodine	per oz.	0 0 7½
Iron Sulphate (copperas)	per ton	1 10 0
" Sulphide (antimony slag)	per ton	2 0 0
Lead (sheet) for cash	per lb.	12 15 0
" Litharge Flakes (ex ship)	per lb.	14 15 0
" Acetate (white)	per lb.	22 0 0
" brown	per lb.	15 10 0
" Carbonate (white lead) pure	per lb.	16 15 0
" Nitrate	per lb.	19 0 0

Lime, Acetate (brown) (ex ship)	per ton	5 0
" (grey) (ex ship)	per ton	8 0
Magnesium (ribbon and wire)	per oz.	0
" Chloride (ex ship)	per ton	2 10
" Carbonate	per cwt.	1 10
" Calcined Magnesia	per ton	9 0
" Sulphate (Epsom Salts)	per ton	2 10
Manganese, Sulphate	per cwt.	16 0
" Borate	per cwt.	2 10
" Ore, 70%	per ton	3 10
Methylated Spirit, 61° O.P.	per gallon	0
Naphtha (Wood), Solvent	per ton	0
" Miscible, 60° O.P.	per ton	0
Oils:—		
Cotton-seed	per ton	15 0
Linseed	per ton	15 0
Petroleum, American	per gallon	0
Stearine	per ton	19 0
Phosphorus (yellow)	per lb.	0
(red)	per lb.	0
Potassium (metal)	per oz.	0
" Bichromate	per lb.	0
" Carbonate, 90% (ex ship)	per ton	17 10
" Chlorate	per lb.	0 0
" Cyanide, 98%	per ton	0 0
" Hydrate (Caustic Potash) 90%	per ton	24 0
" (Caustic Potash) 75/80%	per ton	20 15
" (Caustic Potash) 70/75%	per ton	19 15
" Nitrate (refined)	per cwt.	1 1
" Permanganate	per cwt.	3 15
" Prussiate Yellow	per lb.	0 0
" Sulphate, 90% (ex ship)	per ton	9 15
" Muriate, 80% (do.)	per ton	8 10 0
Silver (metal)	per oz.	0 3 4
Sodium (metal)	per lb.	0 2 10
" Carb. (refined Soda-ash) 48%	per ton	4 15 0
" (Caustic Soda-ash) 48%	per ton	4 5 0
" (Carb. Soda-ash) 48%	per ton	4 0 0
" (Alkali) 58%	per ton	3 17 0
" (Soda Crystals)	per ton	2 5 0
" Acetate (ex-ship)	per ton	13 0 0
" Arseniate, 45%	per ton	15 0 0
" Chlorate	per lb.	0 0 4
" Borate (Borax)	per ton	16 15 0
" Bichromate	per lb.	0 0 3
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	per ton	0 0 0
" (74% Caustic Soda)	per ton	8 2 0
" (70% Caustic Soda)	per ton	7 2 0
" (60% Caustic Soda)	per ton	6 2 0
" (pure liquor 90° Tw.)	per ton	3 15 0
" 77/78% powdered (99% hydrate)	per ton	13 0 0
" Bicarbonate	per ton	0 0 0
" Hyposulphite	per ton	2 0 0
" Manganate, 25%	per ton	15 0 0
" Nitrate (95%) ex-ship Liverpool	per cwt.	30 0 0
" Nitrite, 98%	per ton	30 0 0
" Phosphate	per ton	12 0 0
" Silicate (glass)	per ton	10 0 0
" (liquid, 100° Tw.)	per ton	10 0 0
" Stannate, 40%	per cwt.	1 10 0
" Sulphate (Salt-cake)	per ton	15 0 0
" (Glauber's Salts)	per ton	15 0 0
" Sulphide	per ton	15 0 0
" Sulphite	per ton	15 0 0
Strontium Hydrate, 100%	per ton	15 0 0
Sulphocyanide Ammonium, 95%	per lb.	0 0 0
" Barium, 95%	per lb.	0 0 0
" Potassium	per lb.	0 0 0
Sulphur (Flowers)	per ton	10 0 0
" (Roll Brimstone)	per ton	10 0 0
" Brimstone: Best Quality	per ton	15 0 0
Superphosphate of Lime (26%)	per ton	15 0 0
Tallow	per lb.	18 0 0
Tin Crystals	per lb.	0 0 0
" English Ingots	per ton	64 0 0
Zinc (Spelter)	per ton	17 0 0
" Chloride (solution, 100° Tw.)	per ton	5 0 0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

521.

SATURDAY, MAY 15, 1897.

Vol. XX.

Contents.

	PAGE		PAGE
News	329	Correspondence	335
The Patent Act	330	Tar and Ammonia Products	336
Correspondents	330	Miscellaneous Chemical Market	336
List	331	Report on Manure Material	336
Latest Complete Speci-		The Metal Markets	336
fications	331	Liverpool Oil and Colour Market	336
in the Rand	331	Tyne Chemical Report	336
Chemical Industry	332	Hull Paint, Oil, and Colour Report	336
Chemical Industries	332	West of Scotland Chemicals	337
Alkali and Bleach	333	New Companies	337
Companies	333	Imports	337
Agricultural Value of Sul-	334	Exports	337
phur		Prices Current	344
Ammonia from Blast-			
furnaces	334		

ADVERTISEMENTS.

CAKE Decomposing PAN for Sale; in good condition, weighing about 5 tons. Can be seen at Masboro' Chemical Works, Rotherham. — Apply, Sheffield Chemical Company, Attercliffe.

TENDER.

BUXTON URBAN DISTRICT COUNCIL.

CONTRACT FOR TAR AND LIQUOR.

Buxton Urban District Council invite Tenders for the purchase of the Tar and Ammoniacal Liquor produced at their works during one or more years. To be obtained of Mr. GEO. SMEDLEY, Gas Department, Town Hall.

Council do not guarantee to accept the highest or any Tender. Tenders endorsed "Tender for Tar, etc." to be addressed to the Chairman of the Council, and sent in not later than the 25th inst.

By Order,

JOSIAH TAYLOR,

Clerk to the Council.

May 14, 1897.

Notices.

Communications for the *Chemical Trade Journal* should be sent to the Editor, and Cheques and Post Office Orders made payable to—**THE BROS., 32, Blackfriars Street, MANCHESTER.**

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and Wages, and Special Articles for Sale by Private Contract are the *Chemical Trade Journal* at the following rates:—

30 Words and under 2s. 6d. per insertion.
Each additional 10 words 0s. 6d.
Advertisements of Situations Wanted are inserted at one-half the rates when prepaid, viz.:—

30 Words and under 1s. 6d. per insertion.
Each additional 10 words 0s. 3d.
Advertisements, Announcements in the Directory Columns, and all Advertisements prepaid, are charged at the Tariff rates, which will be forwarded on request.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

CURRENT TOPICS.

FURTHER DEVELOPMENTS OF WATER POWER.

IT might well be supposed that having turned to good account the enormous power of the Niagara Falls, there would be a lull in the utilization of water power in America. This is by no means the case however. Having learned by the experience of the Niagara venture how important cheap power and electrical energy are to numerous industries, a further step towards providing increased facilities is about to be taken.

A company for carrying out the following project was formed some time ago, and all the land along the proposed route has been acquired. The general outline of the plan as at present conceived is simple enough. A canal about three and a half miles long is to be cut from the St. Lawrence River to a point on the Grass River, close to the town of Massena, which is situated in St. Lawrence County, State of New York, about 60 miles above Montreal, and about 20 miles below Ogdensburg. The Grass River is a tributary of the St. Lawrence River, and runs practically parallel to it for a considerable distance. Owing, however, to the peculiar topography of the land here, the Grass River is some 50 ft. below the level of the St. Lawrence; so that by constructing a canal between the two rivers, and thus diverting the water from the St. Lawrence, a minimum fall can be obtained, at the worst season of the year, of 40 ft. The water taken from the St. Lawrence will be restored through the Grass River to the St. Lawrence, the Grass river forming a natural tail race.

The course of the canal is over an almost level plateau, and presents no engineering difficulties whatever in its construction, it being said by the company to be merely a question of removing so many cubic feet of earth at so much per foot. This perhaps is a little optimistic, as even in the short space of three and a half miles it is possible for trouble to arise from sandy sections, and mayhap the interruptions of upheaved rock beds. Still, on a plateau it may safely be said that no very serious difficulties should be met with. Moreover, the engineer who has already been connected with the development of the two greatest sources of water power in the States has reported on the scheme, and considers that it is feasible, and can be carried out at a moderate cost.

The canal when finished will be capable of delivering 150,000 horse-power in water, and the requisite electrical machinery will be set up for delivering 75,000 of this electrically. The remaining power will either be sold as water power, or as electrical power in the event of additional electrical machinery being erected in the future for its development. The capacity of the canal, it is stated, can be easily increased to produce as much as 400,000 to 500,000 horse-power.

The works of the canal will be situated in the town of Massena, and about seven-eighths of a mile from this town is

situated the town of Massena Springs, which is served by the lines of the New York Central and the Grand Trunk Railways. In addition to this and other facilities by rail, various waterways offer favourable means of transportation direct to works in the vicinity of the canal or the St. Lawrence.

It is probable, therefore, that in the course of a year or so there will be another exodus of chemical and allied industries, while the fathers of every new electro-chemical process will most likely make an effort to unswathe their progeny and teach them to walk on the fostering banks of the Grass River.

WHERE WAS THE RESCUING APPARATUS?

The lamentable Snaefell disaster that has befallen the mining industry this week is in some respects a peculiar one. The general theory is that some dynamite which caught fire generated the fumes which caused the numerous fatalities. There was no initial explosion to swell the death roll. Nineteen men simply descended unsuspectingly into an atmosphere that had in some way been rendered irrespirable over the week end; they were overcome, and died. They apparently were going down one after the other, but no alarm seems to have been given to those above. The way they were found by the relief party tends to show this. Between the 60 and 100 fathom levels, on every available resting place at the bottom of the ladders, were corpses in various postures. Evidently the men had tried to ascend the ladders, but becoming exhausted they had lost their hold, and fallen back again. It scarcely seems credible that 19 men could have descended into the dangerous levels after the first two or three had succumbed without an alarm being raised, and the rest of the 19 warned.

Had there been one among them familiar with the use of resuscitators and rescuing apparatus, things might have been very different.

Leaving the first 19 unfortunate victims out of the case altogether, however, the time that elapsed before the rescue party could descend, and the narrow escapes that some of them had even then, all point to the absence of any efficient means for effecting rescue work.

The old familiar test of the burning candle did not avail in this instance, because the candles of the rescuing party burnt brightly. Yet several of the party were soon exhausted, and relay after relay had to run the risk of going too far before turning back.

In the moment of such distress it is scarcely fitting to censure those who are responsible, but it is a time to emphasise the importance of making better known the means that should always be to hand for just such emergencies.

The average respirator would most likely have been of little use, as everything seems to point to the presence of carbon monoxide, but there are not wanting other means that would have rendered it possible to have begun the rescue work within an hour of the catastrophe, and with how much more success it is now only harrowing to think.

Samples of the atmosphere have been taken, but so far nothing definite is known. It is to be hoped, however, that the severe lesson taught by so pitiful a disaster will be laid to heart, and some steps taken in the House of Keys to enjoin the provision of every possible preventive measure.

Two other wants are also made manifest by this fatality. A portable, self-contained, combination of an oxygen supply and respirator is greatly needed for rescue work in mines, and also an auxiliary to the candle or combustion test that will facilitate the detection of carbon monoxide. It is not such an easy thing to devise, but it is worth striving after.

REFORM OF THE PATENT ACT.

IN accordance with the report in the *Journal*, No. 518, p. 282, the following letter was sent from the Manchester Chamber of Commerce to the Board of Trade:—Sir,—The Board of Directors of this Chamber has had under consideration a report of the proceedings at the Board of Trade on the 8th instant, when a deputation representing a number of important commercial and industrial associations was received by Sir Courtenay Boyle, in your unavoidable absence through illness. Correspondence has also been submitted to the Directors which passed between your Department and the firm Messrs. Levinsteins, Limited, members of the Chamber, in the course of last month with reference to their application to you, under section 22 of the Patents, &c., Act, 1883-8, for a licence to work in this country two inventions for which patent rights were granted in 1880 and 1891, to Messrs. Leopold Cassella and Co., of Frankfurt. From the correspondence placed in the hands of the Chamber it appears that in response to the application of Messrs. Levinsteins, forwarded to you on March 4th, a reply was received, dated March 19th, pointing out that Messrs. Cassella and Co. did not appear to have definitely refused to grant the desired licences. If this reply stood alone the Chamber would be constrained certainly to infer that definite refusal on the part of the patentee to grant a licence is a condition precedent to the grant of a licence by the Board of Trade. But in the remarks addressed to the deputation last Thursday, Sir Courtenay Boyle observed:—“It does not follow that there must be a categorical refusal to grant a licence, but can it be said that a patentee has made default, if he has not been asked to do a thing, and has abstained from doing it?” The Chamber appreciates highly the strong assurance, given to the deputation by Sir Courtenay Boyle, of the willingness of the Board of Trade to use its powers to the full in order to carry out the intention and spirit and letter of the Patents, Designs, and Trade Marks Act, 1883. Encouraged by this assurance the Board of Directors has instructed its committee respectfully to invite from you an authoritative statement as to the circumstances which will be held by the Board of Trade to constitute a “default” of the patentees to grant a licence. I am also to ask if it will be so good as to inform the Chamber what course your Department proposes to take with reference to the application to you of Messrs. Levinsteins, Ltd.—I have, &c., ELIJAH HELM, Secretary.

In reply, the Secretary to the Board of Trade has written as follows:—Sir,—I am directed by the Board of Trade to refer to you the letter of the 15th ult., addressed to the President, relative to section 22 of the Patents, Designs, and Trade Marks Act, 1883, and in reply to point out, for the information of the Manchester Chamber of Commerce, that, although the Board will be glad to give every facility for dealing with a case under the section, the Chamber must bear in mind that the duties of the Department are of a judicial character, and that it is therefore impossible for the Board to express an opinion beforehand as to what will or will not be sufficient evidence of default, or what action may be taken on any particular case, until the parties have been heard. I am to add that, in order to assist the Chamber or Messrs. Levinsteins in matters of procedure, the Board suggest that the legal adviser of one or the other should enter in communication with the solicitor to the Board of Trade, who will be happy to discuss in conference the best method of presenting a petition to the Board in the manner laid down by the Act and the rules thereunder.

ANSWERS TO CORRESPONDENTS.

S.P. (Galicia).—The total production of white and rock salt in the United Kingdom for 1895 (the latest official statistics) was 2,173,253 tons, valued at £799,771. Out of this total 212,072 tons were from rock salt and 1,961,181 tons from sea salt, which includes the brine used for making ammonia-alkali. Total shipments were 740,548 tons, valued at £346,219, so that the difference between this figure and the total production represents the amount consumed at home for industrial and domestic purposes. For details of shipments see *C.T.J.* 501, p. 404 paragraph following Table I.; and also Table VI. on p. 405. The actual consumption of alkali manufacture was: Leblanc Process, 408,173 tons; Solvay Process, 428,614 tons.

S.N.—There are several of them getting scarce, so you will do well to take care of them.

X.—It is only when the damage is done that complaint is usually made. Otherwise nothing succeeds like success.

H.F.—It is simply a case of room. This being a fixed quantity everything has to take its turn.

CHILI WANTS AN IRON FOUNDRY.—The Congress of Chili has adopted a Government proposal according to which any person or company establishing an iron foundry in Chili shall receive a subsidy of \$125,000.

IMPROVED SALT EXPORTS.—The official returns of the salt trade issued a few days ago, disclosed a marked revival. During April export exceeded 77,000 tons, an increase of 24,500. Liverpool alone exported 17,600 more than in April, 1896, while Runcorn and the Mersey Canal despatched over 4,000, and Middlesbrough 6,000 in excess of the corresponding period. Since the year opened shipments have exceeded the same period of last year by 43,000 tons.

The Patent List.

is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally due of Chemical Patents.

CATIONS FOR ENGLISH LETTERS PATENT.

or Distributing Liquid Manure. J. Steel. 10,293. April 26.
ine. W. F. Dyson. 10,317. April 26.
Smoke, etc. C. W. May and E. May. 10,344. April 26.
of Eorax. C. Masson and C. Tillière. 10,361. April 26.
O. F. Carlson. 10,362. April 26.
Nitrate of Soda from Caliche. A. Quast-falsem. 10,369.

in Mines to Control Noxious Gases. J. D. Williams and
on. 10,385. April 26.
from Galvanizers' Waste Pickle. A. Crosbie. 10,400.

rs. F. J. Clinch-Jones. 10,423. April 27.
atteries. C. E. Lee. 10,439. April 27.
per or Alloys with Platina. A. J. Boulton. 10,459. April 27.
arbon Dioxide and Hydrogen Sulphide from Ammoniacal
Feldmann. 10,501. April 27.
from Waste Galvanising Pickles, Wet Copper Extraction
or other Residuals containing Iron Chloride. T. T. Sill.
ril 27.

Oil. J. R. Whiting and W. P. Lawrence. 10,526. April 27.
ts from Linseed Oil. J. E. Bedford and C. B. Bedford. 10,576.

benzols from Gases. G. C. Marks. 10,577. April 28.
a Water. H. C. Bull, C. P. Shrewsbury, and F. L. Marshall.
ril 29.
ater Filters. W. Railton and R. Campbell. 10,692. April 29.
ondary Batteries. L. Epstein. 10,705. April 29.
ars from Wool. S. Jowett and J. Dodson. 10,740. April 30.
g Steel, etc. B. H. Thwaite and H. V. Holden. 10,785.

pressed Gas. H. J. Barbier. 10,796. April 30.
ition of Metals. W. Evans and J. W. Smith. 10,822. April 30.
on, etc., from Rust and Making a Combustible Gas.
r and G. Bower. 10,823. May 1.
hicle Ores. J. Swinburne. 10,829. May 1.
ming Apparatus. H. Lee. 10,837. May 1.
idising Apparatus. A. Ehrhardt. 10,867. May 1.
rom Petroleum. H. Hansen. 10,900. May 1.
Carburetted Air. A. A. Quentin. 10,911. May 1.

ENTS OF LATEST COMPLETE SPECIFICATIONS.

acts are specially prepared for the Chemical Trade Journal,
ENTS of publication are RESERVED. This is the earliest
tracts of Chemical and allied patents accessible to the

or Production of Chemical Products by Electrolysis.
am, 53, Bahnhofstrasse, Zurich, and A. Von Hansen, 1, Dufour-
ch. Eng. Pat. 19,218. August 31, 1896.

lyzing solutions of alkaline carbonates below zero,
which have oxidizing properties, are formed. The salt
s the easiest to form. When a solution of pure potassium
urated at -10°C ., and cooled to -16°C ., is electrolyzed
el, using an earthenware diaphragm, a sheet platinum
a platinum wire for the anode, a bluish amorphous salt
anode space. The salt becomes white on drying, which
st be performed quickly, as water decomposes the
the ordinary temperature of the air. The current
out 3 amperes, the potential at the terminals being about
eing taken to regulate the resistance so as to prevent the
f the electrolyte being raised unduly. The salt obtained
a $\text{K}_2\text{C}_2\text{O}_6$, and is contaminated with a certain amount of
tassium carbonate. In the presence of water at ordinary
it gives oxygen and some carbon dioxide. With acid it
e of hydrogen and carbon dioxide, and with potash lye it
alone. It is, therefore, a powerful oxidizing agent,
of the alkali metals and also of ammonium can be
g similar properties.

btaining or Extracting Caustic Alkalies from Alkaline
s, and Hydrate of Barium and Alumina from Barium
D. A. Péniakoff, Rue Baudin Pierre, Huy, Belgium. Eng. Pat.
y 13, 1896.

ee the alumina from aluminates, acids have been used in
the alumina present. Also, hydrates of the alkaline
en used in a similar way to obtain caustic alkalies. To
pense of this method of treatment, advantage is taken of
by simple agitation a large portion of the alumina is

liberated. It is claimed that by constantly stirring the clear aluminate
lyes, 80% of the alumina is precipitated. It is then only necessary to
add one-fifth the usual quantity of the hydrates of the alkaline earths,
or acid, as the case may be. The amount of precipitate to be dealt
with is also much smaller. Owing to the peculiar properties of barium
aluminate, which cause it to closely resemble the aluminates of the
alkalies, this process is applicable to the preparation of barium hydrate
and alumina from barium aluminate.

Improvement in the Manufacture and Storing of Superphosphates and
the like. F. M. Mooney and A. Dickson, both of 74, Rogerson's-quay,
Dublin. Eng. Pat. 9,789. May 8, 1896.

The improvement suggested in this specification is a very obvious
one. In the course of a rambling statement, it is pointed out that by
emptying the dens while the charge is still hot, the chemical reactions
and the evaporation of moisture are checked, to say nothing of having
to work in the unpleasant gases that are given off. It is therefore
suggested that a number of stores or dens, fed from one elevated mixer,
be used. Advantage can then be taken of the liquid state of the
materials in the mixer to convey them by gravity to any of the dens,
where the charge can be left until the conversion of the insoluble
phosphate is fully completed, and the charge dry and cool.

Improvements in the Manufacture of Silica Bricks or other Highly
Refractory Bricks. J. Dixon, Oughtibridge, and A. Reynolds, Balsover
Hill, near Sheffield. Eng. Pat. 11,682. May 29, 1896.

Gannister, or other silicious material, is ground in the usual way,
and mixed with "half stuff," or like fibrous material. The bricks,
after moulding and burning, are porous, and of a fibrous nature,
thereby rendering them less liable to injury through expansion when
heated. By this process, also, the addition of lime is not imperative,
and consequently a more highly refractory brick can be produced.

GOLD OUTPUT IN THE RAND.

THE output of gold from the Rand district during April, as cabled
by the Witwatersrand Chamber of Mines, amounts to 186,315 ozs.
This total, however, is exclusive of the returns of several companies
which, under the title of the "Association of Mines of the South
African Republic," give their joint output as 49,383 ozs. The month's
production is, therefore, 235,698 ozs., and shows an increase of 3,631
ozs. as compared with the previous total, and an increase of 58,991 ozs.
as compared with the corresponding month of 1896. The following
table gives the monthly returns since the beginning of 1894:—

	1894.	1895.	1896.	1897.
	oz.	oz.	oz.	oz.
January	149,814	177,463	148,178	209,832
February ...	151,870	169,295	167,018	211,000
March	165,372	184,945	173,952	232,067
April	168,745	186,323	176,707	235,698
May	169,773	194,580	195,008	—
June	168,162	200,941	193,640	—
July	167,953	199,453	203,873	—
August	171,977	203,573	213,418	—
September ..	176,707	194,764	202,561	—
October	173,378	192,652	199,889	—
November ..	175,304	195,218	201,113	—
December ..	182,104	178,428	206,517	—
Total ..	2,024,159	2,277,635	2,281,874	888,597

PHOSPHORUS FOR AUSTRALIA.—Shippers of phosphorus to Victoria
should note that, in the opinion of the Chief Inspector of Explosives of
that colony, the zinc drums at present in use are too thin to prevent
leakage of the water, and that in consequence there is great risk from
fire.

SUBSTANTIAL DYEWORKS DIVIDEND.—Messrs. Friedrich Bayer
and Co., of Elberfeld, have declared a dividend of 18 per cent for last
year, which absorbs £81,000. of a gross profit of £266,800., from which
also large appropriations have been made for charges, interest, depre-
ciation, and other accounts. A dividend at the same rate was declared
for 1895. The report states that the selling prices of several of the
Company's productions further declined last year, and that the good
result shown by the balance-sheet was only attained through an increase
in the production and an extension of the Company's markets. The
demand for Russia and the American markets has steadily expanded,
but, on the other hand, the trade for India has been adversely influenced
by the outbreak of plague. The off-take for Spain has been very
unfavourably affected by the tariff conditions. Several of the new
installations provided for by the recent increase of the share capital by
£100,000. are now in operation.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

THE last meeting of the session was held on Friday, 7th inst., Dr. Schunck, the President of the Society, being in the chair. There was a very long programme, and it attracted a large attendance, there being between 60 and 70 present. Owing to the length of the programme the meeting commenced half an hour earlier than usual. The adjourned discussions on the papers of Dr. Lewkowitsch and Dr. Liebmann were taken first. In connection with the former a few queries were put by Messrs. Powell, Hurst, and Wilson, which were answered with a brevity bordering on curtness. In the absence of Dr. Liebmann no discussion on his paper took place.

Dr. Grossmann then gave a short description of an apparatus for testing indigo which virtually enabled an actual dyeing test to be made, when the comparative colours obtained by different samples could be judged. The indigo is treated with HCl and NaHO before using, to remove impurities. Owing to the time allowed for introducing such matters to the members having been almost taken up by a desultory discussion on the apparatus and indigo testing in general, Dr. Grossmann did not describe his new form of indigo dyeing vat.

A contribution to the silk weighting question was read by Mr. Langdon, who took exception to the statement made by Sir T. Wardle, that the falling off of the trade was due to the practice of weighting. He was rather of the opinion that it had fallen off because the English silk dyers had not followed the public taste like the foreigners had. If the public wanted new and cheap silks in preference to those that would last a lifetime, it was for dyers to supply such silks. He suggested two ways of meeting the present foreign competition. One was to employ more freely highly-trained chemists and dyers. The other was for the manufacturers to combine and start co-operative dyehouses replete with the latest and best machinery under the control of skilled and scientific directors. He was in favour of supporting the Swiss in placing some limits to the weighting process. Mr. Grimshaw and Mrs. Bailey and Bowman took part in the discussion, which was generally favourable to the attitude taken by the reader of the paper.

Dr. Lewkowitsch contributed a note on the Acetyl Value of oils and fats, and described two modified methods for determining these values. After explaining the nature and meaning of the acetyl value, the author referred to the controversy between himself and the late Prof. Benedikt. The reactions of the test were not so simple as had at first been supposed. Following the matter up, however, the author had formulated one or two changes in the original method which he proceeded to describe. He also pointed out that certain saturated fatty acids give acetyl values, which are fictitious.

The chief drawback to the present method was the practice of first separating the fatty acids, because so doing often marred features that were noticeable when the natural fats were operated on. He claimed that his new methods were quicker than the procedure of Benedikt, and gave results that were more easily arrived at. At the same time trials with several oils gave figures that agreed well.

Mr. Dancer next read a paper on the separation of arsenic, antimony and tin, which was most interesting on account of the unsatisfactory nature of the present methods. His process was based on the solubility of the sulphides of antimony and arsenic in lime water, while the tin is thrown down. The method is both quantitative as well as qualitative. The metals (about 0.1 gram of each) are fused with potassium carbonate and sulphur, the melt dissolved in water, and neutralized with hydrochloric acid. About 300 c.c. of clear lime water are added, and the whole heated to 80° C. for four or five minutes. The tin is washed by decantation, and the filtrate (As and Sb) boiled down, while the precipitate is dealt with by dissolving the small amount on the filter in a few drops of yellow ammonium sulphide, adding to the bulk in beaker, diluting to 400 c.c., and boiling with one gram of pure calcium oxide. When all the ammonia is driven off the tin will be completely precipitated. After filtering, drying, and igniting, dilute nitric acid is added, the soluble nitrate of lime filtered off, and the tin oxide washed, &c., and weighed. The filtrate, boiled down to 30 c.c., is next treated with 0.880 AmHO and glacial acetic acid, added drop by drop, until a permanent precipitate of antimony sulphide is formed. The solution is then boiled, the Sb₂S₃ filtered off and titrated with iodine by Dr. Clark's method. The arsenic which is still in solution is thrown down with strong hydrochloric acid, dissolved in AmHO, and titrated with iodine and starch indicator.

The Hon. Sec. (Mr. Carter Bell) then read a few notes on sewage treatment, which were of considerable importance, as the results had been obtained from eight experiments dealing with millions of gallons, and each extending over a fortnight. Various precipitants had been tried, but both in regard to cost, the consistency of sludge, and the amount of purification, lime in sufficient quantity had proved itself the best precipitant. Mr. Bell emphasized the fact that it was not so much a question of the quantity of sludge, but its consistency. Though in the laboratory experiments the proportion of sludge with lime and

alumina was as 25:4, in practice it was found that in 100 of sludges there was only 4.5% of solids with alumina, and 12% of sludge. With the former, therefore, it meant carrying 7½% of water to sea in the sludge steamer. This was an important consideration.

As there was much more in the figures that were briefly in the meeting than could be appreciated by so short and description as the time would allow, the Secretary was requested to prepare a more extensive paper to be read at the beginning of session. The meeting then closed, and with it the 1896-7 session.

THE RUSSIAN CHEMICAL INDUSTRY.

By P. P. FRODUTJEV.

Pyrites and Sulphur.—Imported sulphur still serves as material for many of the smaller Russian sulphuric acid works. The yearly imports of this raw material have varied in the last between 1,100,000 and 1,300,000 puds (pud = 36 lbs. avoirdupois). Russian sulphur mines meet up to the present with great demand. The yearly quantity of the sulphur produced by smelting hardly 20,000 to 30,000 puds. The price of the home made. Baku fluctuated in the years 1885-1892 between 115 to 118 per pud. During last year in St. Petersburg foreign sulphur for at the rate of 62 to 63 kopecks per pud, unpacked, and 64 if in barrels. In the Government of Novgorod, on the Anichin sulphur pyrites are produced in small quantities, while in the Government of Tula the same are produced as a by-product in the of coal. Also in the Donetz basin the coal is very often accompanied by pyrites; but, being poor in sulphur, they have not been used to now. The Caucasian pyrites, which formerly were used for the extraction of copper by Siemens Brothers, have only since 1894 in their sulphuric acid factory at Baku. In the Urals are exploited in large quantities for the purpose of the sulphur manufacturer. The largest quantity of the Ural sulphur ore is the factories of Uschkow and Co. The proportion of sulphur pyrites is considerable, and often reaches 50 per cent. In many though, pyrites are found with only 37 to 42 per cent., but some contain 4 to 6 per cent. of copper. In the factories of Uschkow and Co. these different materials are mixed, and realise in this way average 43 to 45 per cent. of sulphur. The burnt pyrites contain 3½ per cent. of copper, and are suitable for being worked wet way. The Ural pyrites burn well, do not cake, and in the waste ore can be reduced to 3.5 per cent. They are free from arsenic. The Kalatinsk pyrites (from Newijansk) on the other hand, contain certain quantities of selenium and also tellurium. When these pyrites are used, the sulphuric acid is a red colour, and the consumption of saltpetre is also a heavy whole quantity of ore in Russia produced for the purpose of acid manufacture amounts to at least 1½ million puds; but this, a considerable amount of pyrites is imported from especially from Spain. The imports are fairly permanent, the point having been reached in 1894, when Russia imported 100,000 puds of foreign pyrites. The price of Spanish pyrites in St. Petersburg is 20 kopecks per pud, and in Baku 25 kopecks, with a sulphur content of 45 to 50 per cent. The firm of Nobel Brothers bought ore at ½ kopecks per unit of sulphur, and at 4½ kopecks per unit of copper. The price of Ural ore on the spot of is only 14 to 16 kopecks, but in consequence of the long the price has considerably increased; 32 to 36 kopecks in Jelabugga, Government of Wiatka, where one of the factories is situated.

Salt and Glauber's Salts.—The salt which is used for purposes in Russia comes either from Buchmut (Gouvernement Ekaterinaslov) in the form of rock salt with a proportion 99.4% of sodium chloride, or in the form of sea salt from the Crimean. Out of the Elton sea there have been within the last 150 years over 550,000,000 puds of salt with exhaustion being noticeable, though at the present only the schack sea is used for this purpose, because it lies much nearer transport facilities. In the year 1891 there were produced 1 pud rock salt, 38,052,982 pud sea salt, and 24,773,723 pud salt. This shows a net gain of 81,533,744 pud of salt, though they still import a great deal of this raw material in the whole of the manufacturing districts in the West of Russia is to be found. Since the discovery of Bachmut mine, however, and the introduction of the reduced freight tariff, the demand for salt in the soda and salt cake industry down at puds. The rock salt is not suitable for salt cake manufacture contains any plaster of Paris or peroxide of iron, while on the other hand pure rock salt has the advantage of being free from being less hygroscopic. The crushing of rock salt requires must not be crushed too fine, otherwise it gives trouble in the pot. The coarse powdered salt is usually sifted through a sieve.

mesh in order to free it from the finer particles. The rock salt dissolves much slower than the brine salt, and often requires careful stirring. The salt produced out of the Crimean seas is attacked easily by the acid in the salt-cake pans. The different kinds of Astrachan salt take a position between the sea salt and the rock salt, and the coarse kinds have also to be powdered. For salt-cake manufacture the common salt is the most suitable, only the proportion of water in this kind of salt varies so much that it often causes trouble. The raw salt costs 21/22 kopecks per pud from the factories of the Moscow district; the Crimean salt in Moscow is 25 kopecks per pud, the salt from Astrachan about 11 kopecks per pud, and in St Petersburg the price is 27 to 30 kopecks per pud. Natural Glauber salts were produced for many years in Russia out of the Bataspasian Seas in the district of Kuban, and it is asserted that the cost of production was 45 kopecks. The high cost of transport, and the competition of the sulphate produced from salt, has led to the discontinuance of this manufacture. On the other hand, natural Glauber salts are produced at the present time, at the rate of 30,000 to 70,000 puds yearly, in the government of Tiflis, in Udschama, and is used in the manufacture of caustic soda. Natural Glauber's salts are also produced from the Mormyschian Seas in the district of Barnaul, government of Tomsk, Siberia, and is used partly by a small soda factory in Barnaul and partly by glassworks, or in the working up of lead or silver ores. Out of the mother liquors of the salt a product called "Sel mixte" is now obtained, which is worked up as Glauber salt. The total output of this product during the winter 1895-6 was 60,000 pud.

Sulphuric Acid.—The increase in the manufacture of sulphuric acid in Russia dates from the introduction of the increased duty on this product, but this manufacture is mainly promoted through the demand from the pyroxilin factories. The greatest quantity of sulphuric acid is produced at the factories of Uschkow and those of Tentelew. The Russian Government has a large sulphuric acid factory at their Sebastaschian Powder Works. Uschkow's also have a sulphuric acid factory in connection with the production of explosives. At the present time there are 6 chambers at Uschkow's, with an area of 24,100 cubic m. Sulphuric acid is only produced from the Ural pyrites to the extent of 1,000,000 puds. The burnt pyrites containing copper are subjected to a smelting process by which the copper is recovered. One portion of the copper is transformed into oxide, and the rest is used for the manufacture of copper sulphate, which contains about 1.2% of iron sulphate. The works produce yearly about 15,000 puds of copper and 10,000 puds of sulphate of copper. The burnt pyrites, which contain very little copper, are used for the manufacture of minium, which finds a ready market in the district of Moscow. The works of Tentelew have a chamber system with a capacity of 25,500 c.b.m. and use only Spanish pyrites, the annual production being about 1,500,000 puds of chamber acid, which are concentrated in four platinum rectifiers. The works are also connected with a platinum refinery, and manufacture platinum rectifying plants for other Russian sulphuric acid works. In Russia a rectifying apparatus on the system of Faure and Kessler is chiefly used. The Tentelew works produce by their own method about 120,000 puds of sulphuric acid yearly, and also about 60,000 puds of sulphuric anhydride. The larger Russian sulphuric acid factories (from a technical point of view) are fitted up with all the modern requirements, and possess Gay-Lussac, Glover, and plate towers. The latter are of great importance in Russia, because they enable the chamber capacity to be lessened. In consequence of the considerable difference between summer and winter temperatures, the writer of this article deems it necessary to have in the summer a chamber space of 1.5 to 1.75 cb.m. to 1 kilo. of sulphur worked up in order to secure a good yield of acid with a small consumption of nitre. With such a capacity in the months of June and August the writer gained from 100 puds of sulphur 280 puds of acid by using 5.19 puds of saltpetre; while in the month of October he gained 300 puds of acid from 100 puds of sulphur, using only 1.95 puds of saltpetre. To roast the ore, furnaces with rocking grates are used, and the small ore is roasted in the Maletta's patent burner. In the Uschkow works the Schaffner burner has proved to be excellent. With the Gerstenhöfer ovens no favourable results have been obtained, but nevertheless they are used in Siemen's copper ore forges in the Caucasus, where the SO_2 is not utilised. In a good many factories, especially in the smaller ones, glass retorts are used instead of the platinum apparatus for the concentration of the acid. The cost of this operation is 20 to 25 kopecks per pud of acid. More than half of the sulphuric acid in Russia is produced from pyrites; sulphur is only used in the smaller factories, and those which are situated near Baku. The sulphuric acid works of Nobel Brothers have also changed to the use of pyrites. It has been asserted that the Russian factories use yearly 1,000,000 puds of home-raised sulphur, 1,500,000 puds of imported sulphur, and just as much native pyrites. This shows that Russia produces yearly about 6,000,000 puds of monohydrated sulphuric acid. The imports of sulphuric acid are very small, and amount to only a little over 30,000 puds yearly. The cost of the production of chamber acid in the east of Russia the writer estimates at 22 kopecks per pud of 52% B. acid, or at 65 to 70 kopecks per pud of 93/94% acid. In

Moscow, chamber acid is sold at 58 to 60 kopecks, and R.O.V. at 95/105 kopecks. Uschkow's sell 94% acid to the Caucasian Powder Factory at 75 kopecks per pud. In Baku the price of sulphuric acid is liable to sudden changes. In order to prevent over-production the manufacturers of that district formed a mutual agreement in 1890, but this arrangement only lasted until 1892, when the price of sulphuric acid of 64/66° B dropped from 1.0/120 kopecks to 75 kopecks. Lately, in consequence of the great increase of the petroleum industry and of the increased demand, the price has advanced again. The further dropping of the price of this product, which is so indispensable for the development of the chemical industries, depends upon the increase in the output of native pyrites and upon the reduction of the transport tariffs.

(To be continued.)

EXPORTS OF ALKALI AND BLEACH.

THE following returns, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries for the month of March, 1897, as compared with the same month of 1896:—

ALKALI.				
Port.	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	£	£
Russia	6,169	13,059	1,704	3,574
Sweden and Norway	8,407	4,405	1,862	903
Germany	5,212	17,092	1,587	4,103
Holland	8,931	12,451	1,751	2,577
France	3,696	7,123	1,239	2,553
Spain and Canaries	19,912	25,667	6,803	8,335
Italy	14,369	16,837	4,003	5,037
United States	269,535	253,040	57,786	56,081
Australasia	16,741	16,755	5,222	4,731
British North America ..	7,565	9,076	2,214	2,606
Other countries	88,493	99,285	25,001	27,038
Total	449,030	474,790	109,772	117,538

BLEACHING POWDER, ETC.				
Port.	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	£	£
United States	68,290	58,758	24,316	18,882
Other countries	29,588	28,721	10,556	9,650
Total	97,878	87,479	34,872	28,532

THE ATLAS CHEMICAL COMPANY'S LIBRARY.—We have received a copy of the catalogue of this library which contains over 200 technical works. The rules for conducting library, are as follows:—Entrance fee two guineas, which covers one year. Yearly subscription, after first year, 25/- . Every subscriber receives twenty-six volumes a year, books being exchanged fortnightly or as members desire. The proprietors of the library pay outward postage or carriage on books, and subscribers the return. Any subscriber requiring any particular book, if not included in the library collection, to have it procured if possible.

FUEL COST CALCULATOR.—Messrs. Meldrum Bros of Atlantic Works, City Road, Manchester, have sent us a very neat Fuel Cost calculator, based on the slide-rule principle. By moving the slide and referring to the divisions on one portion of the scale, the cost of fuel per week per I.H.P. is given; while on the other portion, and by a similar movement of the slide, the weight of coal consumed per I.H.P. per hour is shown. There is no calculation or need for reference outside the calculator itself. Full instructions and examples are given on the back. All fuel consumers will do well to apply to Messrs Meldrum Bros. for one of these handy economy inculcating devices.

THE WATER-GAS LIBEL CASE.—The verdict in this interesting case, which, by granting one farthing damages, practically gave a verdict for the defendants, has naturally given great satisfaction to those who wish to see jobbery and corruption suppressed in commercial life. In the subsequent hearing of the application as to costs made this week Baron Pollock said he was unable to agree with Sir Frank Lockwood's proposition to make the plaintiff pay the entire costs of the action, but he should decide that the plaintiff be deprived of his costs, and judgment entered for one farthing damages. The plaintiff had had a verdict in his favour for one farthing, and he thought that verdict was fairly expressed by the term applied to it by Sir F. Lockwood, namely, that it was contemptuous. The jury said "We think although the libel is not true as a whole, yet the attack is justified." The total of the fees for counsel is said to be about 5,000 guineas. Sir F. Clarke is at the top of the list with 1,300 guineas, including "refreshers;" and the others follow in proportion to their legal standing at the Bar—the lowest amount received by one of the juniors being 250 guineas.

so called. When one considers how successful the application of suggestive names has been in other departments of industry and of commerce, it must be admitted that the neglect of sulphate of ammonia, with its nearly 21 $\frac{1}{4}$ per cent. of nitrogen, for nitrate of soda, that barely contains 16 $\frac{1}{2}$ per cent., may in part be due to prejudice created by the persistent drumming of the nitrogen idea on behalf of nitrate of soda, which a change of name, making it also prominent for sulphate of ammonia, might remove.

It will naturally be asked what is the result of comparative experiments made with the two fertilizers? A search has been made with the object of answering this very pertinent question; but as sulphate of ammonia made its way more by its own intrinsic worth than by the praises of its friends, there is very little specially written on the subject. Perhaps this is not altogether a disadvantage, as one is thrown on the nitrate of soda literature, which has been largely added to by the award of considerable money prizes for essays showing its value as a fertilizer. Such works must necessarily be looked upon as biased in all that relates to nitrate of soda, but nothing can impair the worth of statements made in them that tell in favour of sulphate of ammonia.

Professor Paul Wagner, Director of the Agricultural Research Station, Darmstadt, in his work on "The Increase of the Produce of the Soil through the Rational use of Nitrogenous Manures," although showing a decided bias for nitrate of soda, gives, in the true scientific spirit, results that must cause astonishment to those lukewarm friends of sulphate of ammonia, who, little by little, are being converted to the belief that nitric nitrogen, as it appears in nitrate of soda, is more effective than ammoniacal nitrogen.

Professor Wagner carried out or initiated during two years tolerably comprehensive experiments on the effect of manuring with ammonia as compared with manuring with nitrate of soda, and gives the result of his researches in a table which shows in the most convincing manner the practically absolute identity of value for the unit in the two forms of nitrogen. He says:—"In my researches, which were carried out with grass, oats, rye, buck-wheat, and rape, usually no considerable difference between the effect of ammonia and that of nitrate showed itself, if the manure was applied in spring, and immediately before the sowing, to a clayey soil which contained a small percentage of carbonate of lime. In several series of experiments, the effect of ammoniacal nitrogen was fully equal to that of nitric nitrogen, as the following examples will show:—

Manure Nitrogen Per Acre in Lbs.	Yields of Rye.		Yields of Grass.		Yields of Buckwheat.	
	Nitric Nitrogen.	Ammoniacal Nitrogen.	Nitric Nitrogen.	Ammoniacal Nitrogen.	Nitric Nitrogen.	Ammoniacal Nitrogen.
18	43.1	47.4	...	...	35.9	37.2
27	50.1	51.7	...	...	41.8	39.7
36	56.4	55.6	15.0	15.7	45.7	45.6
45	58.1	58.2	17.0	16.9	46.1	48.4
54	62.8	61.6	17.5	18.4	51.8	53.3
63	...	...	18.7	19.3	...	...
72	...	...	20.6	20.8	...	...
0	...	...	...	...	...	...
	38.0		7.6		31.5	
Average	54.1	54.9	17.8	18.2	42.3	42.8

It may be advisable, in order to prevent any possible misconception, to repeat that $\frac{1}{4}$ cwt. of sulphate of ammonia is practically equal in nitrogen contents, and consequently in fertilising power, to 1 cwt. of nitrate of soda. It would be in this proportion that the two manures were applied in the various experiments the results of which are given in the table. It has been thought well to plot this table in the form of a diagram, from which the equal intrinsic value of the two kinds of nitrogen can be seen at a glance. Indeed, if any difference be apparent, it is wholly in favour of ammoniacal nitrogen, as, if the character of the curves be considered, the greater regularity of those formed by the results from sulphate of ammonia distinctly prove that this manure is less injuriously affected by adventitious circumstances than is the case with nitrate of soda.

Can any one after this doubt the practically equal efficacy of the same amount of nitrogen whether found present in a manure as nitric acid or as ammonia? No cases of failures can affect the value of such a series of results. All that can be said, if a failure occurs, is that the proper conditions have not been present to make the nitrogen available. Cases in plenty are to be met with where nitrate of soda has not yielded the result that was properly expected from it, and this may also happen with sulphate of ammonia. It would be just as fair to infer from experiments performed under unfavourable conditions that the nitrogen in nitrate of soda is inferior to its value in normal experiments as it is to do this in the case of sulphate of ammonia under similar conditions.

As an example of the extreme unfairness with which facts may be presented so as to injure sulphate of ammonia—possibly without any real intention to do so—the following extract from the work above quoted will show.

"Some experiments which I carried out with winter rye gave the following numbers as the averages of four closely agreeing parallel experiments.

"Every 10 lbs. of nitrogen as compared with no manure gave the increase in the crop:—

	Grain Lbs.	Straw Lbs.	Grain & Straw Lbs.
1. No nitrogen in autumn, all the nitrogen given in spring in the form of nitrate of soda	215	729	954
2. All the nitrogen given in autumn in the form of sulphate of ammonia, no nitrogen in spring	41	169	210
3. The smaller part of the nitrogen given in autumn in the form of ammonia salt, the larger part in spring as nitrate of soda	145	575	720
4. The smaller part of the nitrogen given in autumn in the form of nitrate of soda, the larger part in spring, also of nitrate of soda	156	594	750

Of course, it may be answered to the charge of unfairness in the way the above experiments are presented, that they were conducted on the assumption that the nitrogen was equally effective in whatever form given, and that they really only show that it is simply waste to give it in autumn in any form. That it makes little difference in what form it is administered, Experiments 3 and 4 pretty well prove. Just consider, however, the effect produced on the ordinary reader on instituting a comparison between 1 and 2. The fact that, in the first case, the nitrogen from the nitrate of soda was presented to the plants at the most favourable period, and that the opposite was the case with the sulphate of ammonia, will avail little in the long-run. The majority of readers will simply remember the good effect produced by the nitrate of soda and the failure of the other manure.

The object of this paper is to direct earnest attention to this anomalous state of affairs in regard to so valuable a by-product, to give reasons why such an unfair condition of things should not continue, and if possible to initiate a discussion that may help to bring about the much-desired improvement. It may, however, be added, that so great has been the benefit rendered by two of the newest industries, namely, the manufacture of basic steel, and the recovery of by-products from blast-furnace gases, to agriculture, the oldest of them all—that with basic slag to be used in autumn and sulphate of ammonia in the spring—the farmer can now provide himself wholly from sources at his very gates with the most necessary ingredients for the cultivation of his crops.

Correspondence.

"We do not hold ourselves responsible for the opinions expressed by our correspondents."

THE TAR DISTILLERS' ASSOCIATION.

(To the Editor of the Chemical Trade Journal.)

Sir,—In your issue of May 1st, you report an application which was made before Vice Chancellor Hall in the case of Hardman and Holden Limited v Lockwood and Co., during the hearing of which the defendants alleged that the plaintiffs (Messrs. Hardman and Holden Limited) were the nominees of the Tar Distillers' Association. Your report further states that the defendants (Messrs. Lockwood and Co.) said the Tar Distillers' Association was an illegal Association, and in carrying out its object the members were guilty of a criminal conspiracy. My attention having been called to your report I, as the Secretary of the only Association of Tar Distillers known to me in England, wish to make the following statement, viz., that the association of Tar Distillers, whose headquarters is at the London Chamber of Commerce, Eastcheap, London, never has, directly or indirectly, interfered with or influenced in any way any contract for tar, and consequently the Association of Tar Distillers never has in any way been mixed up with the dispute between Messrs. Hardman and Holden, Ltd., and Messrs. Lockwood and Co. I enclose you a copy of our rules, and shall be glad if you will insert this letter in your next issue.—Yours, etc.,

ALEX. FORREST,

Hon. Secretary Association of Tar Distillers.

Botolph House, Eastcheap, London, E.C., May 8th, 1897.

NITRATE STATISTICS.—The statistical circular of the Permanent Nitrate Committee for May states that the total exports to Europe, April, were 1,188,000 quintals; loading for Europe, May 1, 668,000 quintals; imports, Europe, April, 49,880 tons; deliveries, Europe, April, 150,830 tons; visible supply, Europe, May 1, stocks and afloat, 338,190 tons.

Oleines from £16. to £18. per ton. Italian olive oil £18. per ton. Danish butter, 95s. to 97s. 6d. per cwt. ory butter, 75s. to 85s.

fair demand for the time of year. Linseed cakes quiet: 12s. 6d. per ton; oilcakes, £5. 12s. 6d.; Russians, Cotton cakes steady: Best makes, £3. 15s. to seconds, £3. 12s. 6d. to £3. 13s. 9d. per ton. ered.

ie demand is fairly well maintained, yet not so eason promised to be in opening. Prices are: White; red lead unchanged; oxide of zinc, from £22.; ts, variable according to make, from £24.; ordinary m £10. per ton, in bulk; paint remover, 25s. per al colours, £3. to £8. per ton; Imperial black tar per ton; oak varnish, from 5s. 6d. per gallon.

OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

monia gave way a little just after last week's despatch, gain after a day or two, and now it figures at from £7. 10s. to £7. 15s. f.o.b. Glasgow. Considerable ship- ing in the course of being provided for, which probably greater tendency towards a feeling of firmness at the is still nothing spoken of for forward delivery, and espondence is, in tone, the reverse of promising any ry in the market. Chemicals, generally, incline still to ept the higher strength of caustic soda which is in fair te of copper has further given way; chloride of potash a fraction lower, and borax leans towards the falling ls (burning) and solid paraffins continue very quiet; pthn) is a shade lower. Lubricants remain firm at the

urrent are:—Soda crystals, £2. 12s. 6d., nett, Tyne, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. austic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., l., and cream 60/62° £6., all nett, Liverpool; bleach- °, £6. 10s. nett, Tyne; saltcake, 19s.; borax, English, i boracic acid, £28. nett, Glasgow; bicarbonate of , £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; ash, 4½d. nett, for Scotch and English deliveries (for t, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for sh deliveries (for export, 3½d. nett, f.o.b. Glasgow); ash, 4d. less 5%, any port; nitrate of soda, 8s. te of ammonia, £7. 12s. 6d. to £7. 13s. 9d. prompt, f.o.b. iac, first and second white, £35. and £33 nett, ate of copper, £16. 10s. less 5%, Liverpool; rd, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin i-refined, 1¼d. to 2d. per lb.; paraffin spirit to 6½d. per gallon; paraffin oil (burning) No. 1, 6½d., l., at Glasgow and other big centres, for Scotch buyers d. to ¼d. lower; ditto (lubricating) 865° £5. to 5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. f sugar at Greenock were 14,232 bags beet unrefined, t refined.

New Companies.

Sugar Factorles, Ltd.—CAPITAL £120,000. in shares ,000 pref.) This company has been formed to enter it with C. J. Crosfield and A. Wilson, and to carry on ugar refiners, saccharine and charcoal manufacturers. to the memorandum of association are:—C. J. Cros- all-road, Liverpool, sugar refiner; J. Heap, Oakwood, red; J. E. Tinne, Mostyn, Aigburth, Liverpool; S. hall-road, Liverpool, manager; A. Woodall, Temple-

court, Liverpool, fruit broker; A. Wilson, 14, Cook-street, Liverpool, solicitor; F. H. Wilson, jun., 14, Cook-street, Liverpool, solicitor.

Granite Silicon Plaster Co., Ltd.—CAPITAL £10,000. in shares of £1. each. This company has been formed to manufacture and deal in plaster, cement, &c. The subscribers to the memorandum of associa- tion are:—H. E. Symons, 115, Ebury-street, S.W., surgeon; P. M. Randall, 3, Belsize Park Gardens, N.W., manufacturer; E. M. Ran- dall, Palmerston-buildings, E.C., manufacturer; J. H. Hughes, Clewer House, St. Albans; D. L. Ward, Manor House, Abbots Langley; C. F. Lever, 9, Hersford-road, Brixton Hill; A. R. Bosman, 27, Marloes-road, Kensington.

Fish, Oil, and Guano Co., Ltd.—CAPITAL £40,000., in £1. shares. This company has been formed to acquire as a going concern the business of the Fish Utilization Syndicate, Ltd. Registered office: 1, Foster-place, Dublin. The subscribers to the memorandum of association are:—F. B. Jameson, 29, Kildare-street, Dublin, distiller; Chelsea, 31A, Green-street, Park-lane, London, M.P.; L. Cadogan, Cnelsea House, Cadogan-place, S.W., A.D.C.; C. L. Townshend, 15, Molesworth-street, Dublin, land agent; W. Chambré, Commercial Buildings, Dublin, merchant; W. B. Hardman, 14, Molesworth-street, Dublin, solicitor; W. Bassett, Monkstown, co. Dublin, gentleman.

A. Boake, Roberts, and Co., Ltd.—CAPITAL £200,000., divided into 10,000 five per cent. cumulative preference shares and 10,000 ordinary shares of £10. each. This company has been formed for the purpose of acquiring, as a going concern, and carrying on the business of A. Boake, Roberts, and Co., manufacturing chemists, of Stratford, London, the conversion being determined upon, it is stated, owing to continued expansion and for the purpose of facilitating family arrange- ments. The business is that of manufacturers of beer and wine finings, and sundries for brewers', wine growers' and distillers' use; soluble essences, colourings, &c., for the confectionery, aerated water, and other trades; technical chemicals for sugar refining, pyrotechnics, disinfectants, &c. The purchase price has been fixed at £190,000. payable as to £100,000. in fully-paid ordinary shares, as to £33,000. in preference shares, and the balance in cash.

W. G. Taylor & Co., Ltd.—CAPITAL £20,000., in £10. shares of which 1,000 are preference shares. This company has been formed to acquire the business of W. G. Taylor & Co., 83, Queen Victoria- street, E.C., and 44, Lancaster-avenue, Manchester, to trade as dealers in paper stock, chemicals, drysalteries, and paper mill machinery. The registered office is: 83, Queen Victoria-street, E.C. The subscribers to the memorandum of association are:—W. G. Taylor, 83, Queen Victoria-street, E.C., merchant; T. Jones, Glan- mire House, Forest-hill, gentleman; A. Malcolm, 26, De Crespigny Park, Denmark-hill, merchant; J. King, Fernshaw, Earlsfield-road, S. W., gentleman; H. C. Jones, Glanmire House, Forest-hill, S.E., gentleman; C. F. Douch, 74, Richmond Park-road, Kingston, S.W., clerk; A. Shepherd, 123, Bishopsgate-street-within, E.C., clerk.

Lanarkshire Steel Co., Ltd.—CAPITAL £250,000. in 10,000 ord. £10. shares and 15,000 pref. shares of £10. each. This company has been formed to take over the company of same name now in liquida- tion. Registered office: 183, St. Vincent-street, Glasgow. The sub- scribers to the memorandum of association are:—J. Strain, 154, W. George-street, Glasgow, C.E.; J. Ross, 27, W. George-street, Glasgow, merchant; A. Rose, Richmond House, Glasgow, paper manufacturer; H. Steven, Milton Iron Works, Glasgow, ironfounder; W. Dickson, Cairnlee, Hamilton, Glasgow, manufacturer; A. Watt, 183, St. Vincent- street, Glasgow, solicitor; J. Macfarlane, Annislea, Motherwell, manager.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

J. HULME and F. A. HULME, soap and essence manufacturers, Stockport, under the style of John Hulme and Son.
G. H. BULMER and C. EYRE, seed crushers, Kingston-upon-Hull, under the style of Bulmer and Eyre.

IMPORTS OF CHEMICAL PRODUCTS

AT
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

EDON.

ing May 1st.

ie—

5s.

J. R. Francis
& Co.
L. & I. D. Jt. Co.

Alkali—

Germany, 20 c. A. & M. Zimmermann

Aluminium—

Sweden, £75 M. D. Co.

Antimony—

Germany, £10 Union L. Co., Ltd.

Antimony Ore—

Turkey, 10 c. Adam Brs.
Portugal, 30 t. J. Bamber
E. Indies, 112 R. & J. Henderson

Arsenic—

France, 10 lbs. J. W. Drysdale
& Co.

Portugal, 93 brls.

Coverley &
Westray

Asbestos—

France, £12
Hong Kong, 150
Italy, 320
" 100
" 600

Girard Frs. & Co.
L. & I. D. Jt. Co.
Brit. Asbestos Co.
Bender & Marting
Pickford & Co.

Barytes—
Belgium, 56 bbls. W. Harrison & Co.
Germany, 56 cks.
Belgium, 24
Holland, 122
" 1 J. L. Lyon & Co.
W. Harrison & Co.
Pinchin, Johnson
& Co.

Bromide of Iron—
Germany, 8 cks. A. & M. Zimmermann

Bromine—
Germany, 20 cks. A. & M. Zimmermann

Caoutchouc—
Italy, 139 c. Chautard & Christensen

U. States, 6 L. & I. D. Jt. Co.
Singapore, 134
France, 26 Girard Bros. & Co.
Holland, 117 Prop. Bull. Wf.
Zanzibar, 6 Clarke & Smith
" 45 Hale & Son
Rangoon, 50 A. Howden & Co.
Germany, 15 Wallace Bros.
" 5 Anderson, Weber
& Co.
Zanzibar, 96 S. Figgis & Co.
" 16 L. & I. D. Jt. Co.
Penang, 16 R. J. Rouse & Co.
Rangoon, 69 L. & I. D. Jt. Co.
Penang, 59 E. Boustead & Co.
Madagascar, 45 Procter Bros.
U. S., 22 Stiebel Bros.
Holland, 1 A. G. Robinson
& Co.

Castor Oil—
Italy, 20 cs. A. & M. Zimmermann

France, 17 cks. J. Greig

Caustic Potash—
France, 4 drs. J. A. Reid

Chemicals (otherwise undescribed)
France, 67 Hernu, Peron
& Co.

Belgium, 140 T. H. Lee
" 45 Société John
Cockerill

Germany, 75 L. & I. D. Jt. Co.
" 35 Petri Bros.

Belgium, 25 Sawyer, Sons & Co.
Holland, 10 G. Rahn & Co.

Germany, 353 T. H. Lee
" 2,147 A. & M. Zimmermann

Belgium, 71 Société John Cockerill
France, 74 Mory & Co.

Holland, 20 Typke & King

China Clay—
France, 20 Bennett S. S. Co.

Cream of Tartar—
Spain, 5 cks. City Coml. Wf., Ld.

France, 10 M. Ashby, Ld.
" 12 B. & F. Wf. Co.
" 6 McNamara & Co.

Cresoline—
Germany, 13 cs. T. H. Lee

Dextrine—
Germany, 100 bgs. W. Balchin
" 30 Pronk, Davis & Co.

Dyestuffs—
A. Gols
Italy, 2 cks. Bailey & Leatham

Cutch
Rangoon, 1,290 bxs. A. Howden & Co.

Singapore, 400 cs. Borneo Co.
Rangoon, 950 Leach & Co.

" 100 Brown & Emslie
" 150 Hicks & Ashmore

Divi Divi
Germany, 100 bgs. Hale & Son

" 376 Sperling & Williams

Extracts
Austria, 82 cks. Hoare, Wilson
& Co.

France, 1 Prop. Hay's Wf.

Germany, 2 Bailey & Leatham
Ld.

France, 15 B. & F. Wf. Co.

" 35 L. J. Levinstein
& Sons

Italy, 25 Major & Field
Austria, 100 J. & R. Grant

" 150 Brink Bros.
Canada, 5 W. I. Chemical
Works

Denmark, 1 cs. D. Currie & Co.

" 18 pks. Pickford & Co.
France, 200 bxs. T. H. Lee

Gambler
Singapore, 237 bbls. J. E. Scott
" 1,995 Bellamy's Wf., Ld.
" 243 P. Heydemann
China, 1,068 P. & O. Co.
Singapore, 273 bgs. Beresford & Co.
" 369 S. Barrow & Bro.
" 432 G. R. Haller

Indigo
E. Indies, 6 chts. Binny & Co.

" 22 Lewis & Peat
" 34 Begg, Dunlop & Co.

" 13 Parsons & Keith
" 2 bxs. Vogt,
Herbert & Co.

" 11 Hopkins, Ford
& Co.

" 24 H. Johnson & Sons

" 3 P. Macfadyen & Co.

" 11 Walker, Munie
& Co.

" 35 R. Von Glehn
& Sons

" 8 Croysdale & Co.

B.W.I., 97 Patry & Pasteur

Holland, 1 Tingle, Jacobs
& Co.

E. Indies, 70 L. & I. D. Jt. Co.

Myrabolams
E. Indies, 1,333 bgs. Ralli Bros.

" 5,000 pkts. A. B. Curtis & Co.

France, 4 bgs. T. H. Lee

Saffron
Spain, 1 cs. J. Knill & Co.

Shumac
Italy, 70 bgs. R. Waters

" 200 J. E. Scott

" 200 bbls. Clark, Gray & Co.

Tannery's Bark
Natal, 166 t. A. & W. Nesbitt

Belgium, 20 Sawyer, Sons & Co.

" 109 Hicks, Nash & Co.

Turmeric
E. Indies, 78 bgs. Brown & Elmslie

Valonia
A. Turkey, 45 t. A. & W. Nesbitt

" 180 Boucher, Mortimore
& Co.

" 20 A. J. Humphrey

Farina—
Holland, 50 bgs. T. H. Lee

" 55 J. Barber & Co.

Gambose—
Holland, 30 cs. L. & I. D. Jt. Co.

Glucose—
U. States, 200 pks. 1,200 c. E. & T. Pink

" 500 500 c. Furness,
Withy & Co.

" 500 500 Harrison &
Burton

" 250 250 Trier, Meyer
& Co.

" 500 500 Bellamy's
Wf. Co.

" 230 1,046 L. Norman
& Co.

Turkey, 150 900 Deering &
Robottom

U. States, 1,550 1,775 Knowles &
Padgett

" 50 307 Vokins & Co.

" 500 500 Robinson,
Son & Co.

" 60 348 S. E. Rail

" 2,503 5,578 R. G. Hall
& Co.

Glue—
Germany, 197 F. Claydon & Co.

Austria, 90 Craven & Co.

" 125 J. Barber & Co.

" 550 M. D. Co.

Germany, 45 Hillman, Kellor, & Co.

France, 313 J. Harrison

U. States, 24 Morrison, Pollexfen,
& Co.

Italy, 40 Kinkston B. S.

Germany, 25 C. A. & H. Nicholls

" 600 T. H. Lee

Holland, 32 H. Johnson & Sons

Belgium, 200 T. H. Lee

Iron Oxide—
Holland, 199 t. W. Hawkins & Co.

" 141 J. Owen

Persia, 863 M. D. Co.

Lead Acetate—
Germany, 56 cks. F. Boehm

Litharge—
Holland, 77 cks. Spies Bros. & Co.

Magnesium—
Germany, 1 cs. D. W. Greenhaugh
& Son

Manure—
France, 50 t. Burnett Bros. & Sons
E. Indies, 125 A. Hunter & Co.
" 100 N. Waterhouse & Sons
France, 50 G. Bennett & Sons

Methyl Alcohol—
France, 20 cks. W. S. Barber

Mica—
U. States, 1,600 W. M. Smith & Sons
E. Indies, 4,790 E. Davis & Co.

Molasses—
B.W.I., 6 cks. 60 c. L. & I. D. Jt. Co.

U. States, 150 851 R. G. Hall
& Co.

" 260 1,630 W. Balchin

Ochre—
France, 50 cks. Burrell & Co.

Holland, 7 cs. 11 pks. Philipps &
Graves

France, 40 cks. W. Harrison & Co.

" 4 O'Hara & Hoar

Spain, 40 N. V. Robinson & Co.

Phosphate Rock—
Belgium, 50 t. Sawyer, Sons & Co.

" 250 D. de Pass & Co.

" 50 Perkins & Homer

France, 50 West & Penrose

Bona, 1,370 J. Gibbs & Co.

U. States, 650 West & Penrose

" qty. Anglo-Contl. G.
Works

Pitch—
B.W.I., 50 brls. Anglo-Contl. G.
Works

Plumbago—
Italy, 200 bgs. J. Threddar, Son,
& Co.

U. States, 10 cs. Lunham & Moore

Ceylon, 680 cks. J. Threddar, Son,
& Co.

Italy, 100 bgs. B. Galloway

Ceylon, 198 cks. Anderson, Weber,
& Co.

Germany, 7 B. Galloway

Potash—
Holland, 35 cks. R. W. Greeff & Co.

Potassium Bicarbonate—
Holland, 32 cks. A. & M. Zimmermann

Potassium Carbonate—
Germany, 399 c. W. G. Blagden

France, 50 J. A. Reid

Pyrites—
Spain, 2,000 t. C. Tennant, Sons,
& Co.

Pomaron, 1,000 Mason & Barry, Ld.

Quicksilver—
Italy, 100 flks. H. Bath & Son

Spain, 9 btl. H. J. Enthoven
& Son

Saltpetre—
E. Indies, 1,183 bgs. L. & I. D. Jt. Co.

" 1,379 Perkins & Homer

Germany, 70 cks. S. E. Railway Co.

" 12 120 kgs. P. Hecker
& Co.

Soda—
Holland, 150 c. R. W. Greeff & Co.

Belgium, 400 Lamb & Co.

Sodium Phosphate—
Belgium, 13 cks. H. Wallace & Co.

Sodium Sulphate—
Germany, 90 pks. Deering &
Robottom

Starch—
Germany, 1,000 cs. Horne & Co.

" 41 Philipps & Graves

Holland, 115 T. H. Lee

" 1,000 Little & Johnston

" 134 Philipps & Graves

Belgium, 40 Leach & Co.

" 1,095 Sawyer, Sons & Co.

Germany, 910 bgs. E. & T. Pink

France, 40 cs. R. Bennett & Co.

Germany, 28 bgs. T. Cox

Belgium, 20 cs. Seaward Bros.
& Co.

" 130 Becker & Wagner

Stearine—
France, 68 bgs. Beresford & Co.

" 283 G. Boor & Co.

Sulphur—
Italy, 30 t. A. Zembel

" 10 S. E. J.

" 100 Brandram Bros.

" 5 G. Carling

" 50 Society

" 10 Alder

" 2 Andonien

" 100

Talc—
Italy, 14 W. H. J.

" 14 Imperial Ashes

Tartaric Acid—
Holland, 5 pks. F. C. Devos

" 15 B. & F.

" 4 Kirkpatrick

Ultramarine—
Holland, 1 cs. Heron, Peron

Germany, 2 Tay

Holland, 4 Philipps &
Graves

Belgium, 4 brls. D. Storey

Germany, 2 cks. Pinchin, J.

Varnish—
U. States, 14 pks. Tay

Verdigris—
France, 1 cks. B. & F.

" 3 H.

Vermillion—
Germany, 10 cs. W. M. Smith

White Lead—
Austria, 24 cks. M.

Holland, 30 cks. Burn

Germany, 100 Steinbock, Son

" qty. Perkins &
Lem

Wood Pulp—
Sweden, 26 pks. N.

Germany, 93 W. F. H.

Sweden, 410 Handman

Norway, 1,082 W. G. Tay

" 300 W. E. Beck

" 664 C.

Belgium, 516 Tough & H.

Sweden, 63 C.

Norway, 160 Johnson & J.

Belgium, 1,752 E. J. & W. G.

Zinc Oxide—
Holland, 104 bbls. M. A.

" 50 125 cks. S.

U. States, 100 M. A.

Germany, 90 Sound

Holland, 500 Sound

" 123 Pyrite

" 100 pks. Pyrite

Germany, 25 R. J.

Zinc Sulphate—
Germany, 32 cks.

LIVERPOOL
Week ending April 29

Bone Ash—
Larate, 690 bgs. & J.

Chemicals (otherwise unde)
Hamburg, 4 cs.

Cottonseed Oil—
New York, 100 brls.

" 100

New Orleans, 150

Cream of Tartar—
Bordeaux, 28 cks.

Dried Blood—
Larate, 412 bgs.

Dyestuffs—
Cutch
Rangoon, 300 bxs. Ba

Divi Divi
New York, 276 bgs. A. Dub

Extracts
Hamburg, 120 cks.

Logwood
Portland, M., 4 cs.

Hamburg, 50 cks.

Iron
 1 cs.
Mercuric
 8 bgs.
Se
 500 brls. T. M. Duché & Son
 700
 500
 1 bl. 46 bskts. N. Johansen & Dahl
 30 bgs.
 6 15 cks.
anese Oxide
 1 ck.
 79 cs. J. Nickels & Son
In Scale
 136 brls. Thompson & Bedford
 100
 11 cks.
ium Carbonate
 19 cks. Sachse & Klemm
 6,365 t. Matheson & Co.
 2,009 bgs. Ralli Brs.
 11 bxs
 200 bgs. Geo. G. Blackwell, Sons & Co.
n Silicate
 1 brl. J. Hudspath
 125 bgs.
 200 sks.
 80 cs.
 100 tcs. Walkington & Co.
 342 pps.
 150 tcs.
 2 cks.
 4 cks.
 500 brls.
 2 cs.
 500
 619
 8 brls. W. A. Warren
Pulp
 169 cs. Christie & Co.
 249 crts. Lever Brs
 548 bls.
oxide
 100 cks. M. Ashby, Ld.

MANCHESTER.

Week ending May 1st.

te of Lime
 4,856 bgs.
ine
 1 cs. 43 brls.
e Colours
 1 ck. 3 bgs.
e Salts
 1 cs.
acene
 4 cks.
ony Oxalate
 4 cks.
 100 bgs.
 10 cks.
lic Acid
 20 cks.
icals (otherwise undescribed)
 3 cks.
ium Acetate
 5 brls.
 2 cks.
 9 1 pk.
 33 12 cs 20
 112 brls.

Cream of Tartar
 Boulogne, 4 cks. 20 kgs.
Dyestuffs (otherwise undescribed)
 New York, 50 brls. Schloesser & Son

Gelatine
 Rouen, 10 cs.
Glucose
 New York, 555 brls. T. M. Duché & Sons
 150

Glue
 Rouen, 19 cks. 12 bls.
 Hamburg, 3 5 bskts.
 Antwerp, 5 brls. 10 bls.
 Treport, 5 cks. 12
 Boulogne, 7 130 bgs.

Indigo
 Boulogne, 2 cts.

Lead Acetate
 Hamburg, 8 cks.

Limestone
 Antwerp, 7 crts.

Ochre
 Treport, 8 cks.

Oxalic Acid
 Boulogne, 30 cks.

Paraffin Scale
 New York, 850 brls. Anglo-American Oil Co.

Potassium Carbonate
 Stettin, 38 cks. Stott, Coker, & Co.

Potassium Chloride
 Hamburg, 45 cks.

Potassium Prussiate
 Boulogne, 11 cks.

Salt
 Hamburg, 1 cs.

Soda
 Rouen, 8 cks.

Sodium Acetate
 Treport, 28 cks.

Sodium Nitrate
 Antwerp, 7 cks.
 Boulogne, 4

Starch
 New York, 700 bgs. T. M. Duché & Sons
 Antwerp, 160 cs. J. T. Fletcher & Co.

" 220

Boulogne, 55

Hamburg, 32 bgs.

New York, 5,672 1,200 sks.

Stearine
 Boulogne, 14 bgs.

Tar
 New York, 60 brls.

Tartar
 Hamburg, 4 cks.

Tartaric Acid
 Boulogne, 6 cks. 15 kgs.

Tin Oxide
 Ghent, 10 brls.

Ultramarine
 Boulogne, 5 cks.

Waste Salt
 Hamburg, qty.

Wood Pulp
 Christiania, 82 cs.
 Stettin, 56 bls. Stott, Coker, & Co.

Gothenburg, 1,806

Hamburg, 192

Zinc Ashes
 Antwerp, 8 cks.

Zinc Oxide
 New York, 100 brls.
 Boulogne, 30 cks.

Zinc White
 Boulogne, 25 cks.

HULL.

Week ending May 1st.

Acids
 Bari, 53 cks. Wilson, Sons, & Co., Ld.

Albumen
 Hamburg, 10 cks. Wilson, Sons, & Co., Ld.

" 5 cs. G. Becker

Aluminium
 New York, 40 bxs. Wilson, Sons, & Co., Ld.

Aniline Colours
 Rotterdam, 1 ck. Hutchinson & Son

Antimony
 Dunkirk, 3 cs. Wilson, Sons, & Co., Ld.

Arsenic
 Hamburg, 70 cks. Wilson, Sons, & Co., Ld.

Barytes
 Antwerp, 60 bgs. Bailey & Leatham, Ld.

" 43 cks. A. Sanderson & Co.

Rotterdam, 100 bgs. W. & C. L. Ringrose

Amsterdam, 19 cks. " "

Camphor
 Hamburg, 3 cks. Wilson, Sons, & Co., Ld.

Caoutchouc
 Dunkirk, 13 cks. Wilson, Sons, & Co., Ld.

Castor Oil
 Venice, 5 cs. Wilson, Sons, & Co., Ld.

Chemicals (otherwise undescribed)
 Hamburg, 5 cks. Bailey & Leatham, Ld.

" 90 Wilson, Sons, & Co., Ld.

Antwerp, 24 pks. " "

Cod Oil
 Drontheim, 40 brls. Wilson, Sons, & Co., Ld.

Aalesund, 217 " "

Bergen, 80 " "

Christiansund, 50

Colours
 Trieste, 98 brls. Blundell, Spence, & Co.

Rotterdam, 17 3 cs. W. & C. L. Ringrose

Bremen, 8 cks. Veltmann & Co.

" 4 Storry, Smithson, & Co.

Antwerp, 1 J. W. Davis & Son

" 3 4 pks. Wilson, Sons, & Co., Ld.

Hamburg, 8 cks. 5 cs. Wilson, Sons, & Co., Ld.

Riga, 2,443 " "

Cottonseed Oil
 New York, 90 brls. Wilson, Sons, & Co., Ld.

Hamburg, 1 W. Gray & Sons

Cream of Tartar
 Rotterdam, 2 cks. W. & C. L. Ringrose

Cryolite
 Copenhagen, 6 cks. Wilson, Sons, & Co., Ld.

Dyestuffs
 Alizarine
 Rotterdam, 22 brls. W. & C. L. Ringrose

Gambier
 Hamburg, 155 pks. Wilson, Sons, & Co., Ld.

Indigo
 Trieste, 4 cs. Wilson, Sons, & Co., Ld.

Logwood
 Hamburg, 30 bgs. Wilson, Sons, & Co., Ld.

Madder
 Rotterdam, 1 ck. Hutchinson & Son

Myrabolams
 Bombay, 10,465 bgs.

Shumac
 Palermo, 1,235 bgs. Wilson, Sons, & Co., Ld.

" 1,275 bgs. " "

Trieste, 101 pks. " "

Molfetta, 100 bgs. " "

Farina
 Stettin, 550 bgs. Wilson, Sons, & Co., Ld.

Harlingen, 250 W. & C. L. Ringrose

Glucose
 New York, 50 brls. Wilson, Sons, & Co., Ld.

" 800 250 bgs.

Glue
 Rouen, 30 cks. Rawson & Robinson

Bergen, 10 pks. Wilson, Sons, & Co., Ld.

Antwerp, 11 bls. Bailey & Leatham, Ld.

Hamburg, 1 cs. Wilson, Sons, & Co., Ld.

Dunkirk, 2 cks. Wilson, Sons, & Co., Ld.

Kaolin
 Amsterdam, 20 cks. W. & C. L. Ringrose

Lamp Black
 New York, 52 brls. Wilson, Sons, & Co., Ld.

Lead Acetate
 Hamburg, 54 cks. F. B. Grotrian & Co.

Lime
 New York, 2,718 bgs. Wilson, Sons, & Co., Ld.

Mineral White
 Finme, 50 bgs.

Naphtha
 Reval, 1 ck. Wilson, Sons, & Co., Ld.

Ochre
 Rouen, 21 cks. H. J. Oldroyd

" 16 J. W. Hill

Paint
 Trieste, 21 cs. Wilson, Sons, & Co., Ld.

Boston, 14 " "

New York, 15 kgs. " "

Philadelphia, 7 brls. " "

Phosphate
 Ghent, 360 t.

Phosphorus
 New York, 5 cs. Wilson, Sons, & Co., Ld.

Pitch
 Amsterdam, 24 cks. W. & C. L. Ringrose

Potash
 Rotterdam, 50 cks. W. & C. L. Ringrose

Dunkirk, 18 Wilson, Sons, & Co., Ld.

Soap
 Rotterdam, 100 cs. Wilson, Sons, & Co., Ld.

Boston, 2 " "

Starch
 Amsterdam, 80 cs. W. & C. L. Ringrose

Ghent, 194 pks. Wilson, Sons, & Co., Ld.

Bremen, 1,563 cs. Veltmann & Co.

New York, 100 bgs.

Ghent, 78 Hutchinson & Son

Antwerp, 224 Wilson, Sons, & Co., Ld.

Sulphur
 Catania, 833 pks. Wilson, Sons, & Co., Ld.

" 1,429

Tartar
 Bari, 25 cks. Wilson, Sons, & Co., Ld.

Tartaric Acid
 Rotterdam, 3 cks. Hutchinson & Son

" 6 W. & C. L. Ringrose

Treacle
 Boston, 201 brls. Wilson, Sons, & Co., Ld.

" 100

New York, 947 " "

Ultramarine
 Rotterdam, 26 cks. W. & C. L. Ringrose

Yarnish
 New York, 45 pks. Wilson, Sons, & Co., Ld.

Waste Salt
 Hamburg, qty. Bailey & Leatham, Ld.

" 30 bgs. Wilson, Sons, & Co., Ld.

White Lead
 Amsterdam, 54 cks. W. & C. L. Ringrose

Rotterdam, 11 " "

Wood Pulp
 Hamburg, 280 pks. Bailey & Leatham, Ld.

Rotterdam, 70 W. & C. L. Ringrose

Christiania, 232 bls. Wilson, Sons, & Co., Ld.

Gothenburg, 100 " "

Hango, 320 J. Good & Sons

Zinc Oxide
 Antwerp, 50 cks. Bailey & Leatham, Ld.

" 5 Morley & Co.

Zinc White
 Rotterdam, 10 cks. W. & C. L. Ringrose

CLASS OF

Page 10 of 10

[illegible]

TYNE.

Wrote outline May 14.

Garyite —			
Antwerp,	200 lbs.	Tyne S. S. Co.	
Rotterdam,	200	"	
Gold Ore —			
Chloride,	100 lbs.		
Colours —			
Rotterdam,	2 cks.	Tyne S. S. Co.	
Glass —			
Antwerp,	3 cks.	Tyne S. S. Co.	
Limestone —			
Antwerp,	1 crite.	Tyne S. S. Co.	
Pyrites —			
Huelva,	2 715 L.		
"	3,000	Thariss	
		Sulphur & Copper Co.	
Soap —			
Rotterdam,	7 cks.	Tyne S. S. Co.	
Starch —			
Antwerp,	100 cks.	Tyne S. S. Co.	
Rotterdam,	20	"	
Tartaric Acid —			
Rotterdam,	4 cks.	Tyne S. S. Co.	
Ultramarine —			
Rotterdam,	1 ck.	Tyne S. S. Co.	
White Lead —			
Antwerp,	20 brls.	Tyne S. S. Co.	
Wood Pulp —			
Rotterdam,	20 bls.	Tyne S. S. Co.	
Christiana,	50		
Zinc Oxide —			
Rotterdam,	3 cks.	Tyne S. S. Co.	

GOOLE.

Week ending April 28th.

Alizarine—	
Rotterdam,	25 cks. 2 cs.
Alkali—	
Calais,	14 cks.
Aniline—	
Hamburg,	20 cks. 3 cs.
Antimony—	
Boulogne,	2 cks.
Antimony Sulphide—	
Boulogne,	2 cs.
Colours—	
Hamburg,	20 cks.

Dyestuffs (otherwise used)

Boulogne,	2 cks.	211
Rotterdam,	287	60 cks.
Farina —		
Hamburg,	300	bags.
Glucose —		
Calais,	100	bags.
Lead Acetate —		
Hamburg,	17	cks.
Potash —		
Calais,		
Dunkirk,	20	cks.
Starch —		
Rotterdam,		6 cks.
Tartaric Acid —		
Rotterdam,	4	cks.
Varnish —		
Antwerp,	20	cks.
Waste Salt —		
Hamburg,	500	bags.
Wood Pulp —		
Rotterdam,	27½	bals.
Antwerp,	528	

GRIMSBY.

Week ending May 1st

Albumen—	
Hamburg,	5 cks.
Barytes	
Hamburg,	10 cks.
Chemicals (<i>otherwise under</i>	
Hamburg,	2 cks.
Colours—	
Antwerp,	74 cks.
Rotterdam,	4
Hamburg,	59
Dyestuffs (<i>otherwise under</i>	
Dieppe,	25 cks.
Farina—	
Hamburg,	2 cks.
Indigo	
Rotterdam,	1 cks.
Pitch—	
Hamburg,	82 cks.
Dieppe,	110
Plumbago—	
Hamburg,	1 cks.
Starch—	
Antwerp,	160 cks.
Waste Salt—	
Hamburg,	500 lbs.

EXPORTS OF CHEMICAL PRODUCTS

ON

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

1992-1993 2000-2001

[illegible]

Shanghai,	2	5
Pt. Elizabeth, 7 cts.		27
Sydney,	20	23
Brisbane,	30	12
30 dms.		212
Auckland,	3	4
Grisbourn,		44
Melbourne,		9
Brussels,		30
Osmania,		49
Dusseldorf,		12
		27
Citric Acid—		
Montreal,	1 c.	3 c.
Wellington,		5
Calcutta,		2
Dusseldorf,		12
St. Petersburg,	2	15
Hamburg, 22 kgs.		548
Yokohama,	1	10
Brussels,	2	7
Grona,	1	120
Copenhagen,		25
Bombay,	5 cts.	18
Riga,	5	10
Amberg,	2 kgs.	1
Cologne,		1
Karlsruhe,	1	3
Coal Products—		
Alizarine		
Lima,	3 cts.	459
Montreal,	10 cts.	159
Madras,	40	112
Boston,	55	669
New York,	75	280
Aniline		
Wellington,	14 cts.	210
Melbourne,	2 cts.	35
Anthracene		
Dusseldorf,	44 cts.	459

Benzol	
Yokohama,	14 dms.
Creosote	
New York,	400 cks. 2 cs.
Dyes	
Lyttelton,	2 cks.
Naphtha	
Treport,	100 bks.
Naphthaline	
Rotterdam,	10 bgs.
Antwerp,	1 cks.
Naphthaline Salts	
Hamburg,	1,495 bags.
Pitch	
Dunkirk,	287 t.
Alexandria,	30 bks.
Sydney,	20
Cette,	1,000
Philadelphia,	100 b.
Launceston,	3
Durham, 10 kgs.	24
Antwerp,	7,337
Pyridine Bases	
Bourgas,	2 cks.
Tar	
Brisbane,	30 dms.
St. Petersburg	4,000 bks.
Pt. Ellenbeth,	500
Launceston,	30 bks.
Durban,	3
	2 cks.
Tar Oil	
Marseilles,	12 cks.
Boston,	325 bks.
Hamburg,	250
Tar Salts	
Bruzac,	2 cks.
Toluol	
Boulogne,	30 bks. 20 cks.

Sulphate—

60 t. £328
35 656

of Tartar—

London, 10 c. £41
din, 10 kgs. 44
ide, 1 t. 5 99
hama, 1 5 23
r, 10 5 brls. 87
gton, 4 17
burne, 2 315
ceston, 5 157
des— 23

ig, 1 t. 10 c. £140

fectants—

ig, 50 dms. 12
e Janeiro, 23 pks. 10
iches, 45 45
Town, 60 cks. 27
and, 4 cs. 16
Kong, 10 70
gton 6 34
ita, 10 kgs. 50
rne, 16 47
bo, 66 43
sy, 275 162 301
bar, 80 25

irk, 93 t. 11 c. £398
ide, 5 6 45

um, 5 t. £20
ara, 18 15 c. 17

re— 5 t. £20
ig, 10 65
ica, 31 18 c. 280
does, 116 10 885
ndon, 26 2 140
35 155
24 170
25 200
10 2 25

ne— 3 rnts. £36
urg, 1 12
cl, 40 dms. 72
lin, 10 cs. 34

Acid— 16 crbys. £32

Acid— 5 brls. £19
2 cks. 24

horic Acid— 5 cks. £74

horus— 23 cs. £230
5 48

h— 14 c. £26
burne, 7 13

Salts— 12 t. 12 c. £752

ium Bicarbonate— 1 t. 3 c. £30

ium Chlorate— 20 kgs. £34
York, 1 t. 40
ita, 1 38

ium Permanganate— 20 kgs. £75

ium Prussiate— 5 c. £13
47 cks. 650

tre— 13 t. 15 c. £241
n, 1 16 34
er, 1 5 34
hilla, 1 13 34
ey, 2 14 44
an, 1 22

Dip— 2 t. 16 c. £75
tta, 925 dms. 72 pks. 119
ideo, 3 5 234
ourne, 2 6

Nitrate— 2 t. 2 c. £20

ndam, 5 t. £30

Crystals— 6 t. 6 c. £15
lizabeth, 1 15 7
goa Bay, 1 10 5
Town, 1 10 15
antle, 4

Soda Salts—

New York, 5 c. £35

Sodium Bicarbonate—

Melbourne, 6 t. 6 c. £36
Trinidad, 1 8
Paris, 5 10 99
Pt. Elizabeth, 1 5 6
Yokohama, 1 28
Auckland, 1 7
Fremantle, 1 6
Canary Is., 6 12

Sodium Carbonate— 12 c. £8
Fremantle, 1 t. 14
Pt. Elizabeth, 1 t. 14

Sodium Sulphate— 50 t. £75

Sodium Tartrate— 11 c. £33

Strontia— 10 cks. £60

Strontium Nitrate— 10 brls. £53

Sulphur— 1 t. 5 c. £39
Philadelphia, 400 kgs. 252
Cape Town, 3 14 35
Madeira, 4 9 31
Pt. Elizabeth, 21 cs. 9
Durban, 9

Sulphuric Acid— 12 dms. £16
Durban, 30 cs. 23

Superphosphates— 35 t. £103

Tartaric Acid— 6 c. £34
Wellington, 8 47
Dunedin, 15 180
Higo, 2 25 302
Yokohama, 5 28
Valencia, 10 55
Sydney, 2 10 274
Melbourne, 3 19
Napier, 4 kgs. 24
Riga, 24

LIVERPOOL.

Week ending May 5th.

Acetic Acid— 4 c. 3 q. £3

Alum— 1 t. 2 q. £5
M. Video, 3 15 c. 19
Bourgas, 2 18 13
San Francisco, 10 3 40
Quebec, 2 2 12
Cape Town, 1 15 9
Galatz, 2 5 10
Larnaca, 2 3 11
Callao, 1 25 11
Rio de Janeiro, 1 3 6
Sydney, 1 3 5
Montreal, 54 6 253

Alumina Sulphate— 2 t. 3 c. £8

Ammonium Carbonate— 8 c. £13
New York, 7 10
Vera Cruz, 17 25
Marseilles, 15 22
Newcastle, N.S.W., 16 24
Melbourne, 1 t. 26
Copenhagen, 1 2 28
Barcelona, 1 1 28

Ammonium Chloride— 5 c. £8
Malta, 2 t. 37
Genoa, 10 37
Galatz, 10 37
Alexandria, 1 32
New York, 2 3
Philadelphia, 12 10 125
Beyrouth, 16 25
Montreal, 14 18

Ammonium Sulphate— 70 t. £360
Tegal, 15 9 c. 2 q. 123
Barbadoes, 102 14 790
San Francisco, 102 2 798
Torre del Mar, 412 18 3 2,989
Samarang, 5 40
Las Palmas, 153 7 1 1,198
Valencia, 51 10 380
Gd Canary, 53 8 2 418
Philadelphia, 50 11 405
Yokohama, 3 2 2

Arsenic— 4 c. £5

Barytes— 1 kg. £3

Bleaching Powder—

Alexandria, 4 brls. 45
Baltimore, 81 cks 45
Boston, 236 15
Corfu, 18
Dunkirk, 73
Ghent, 13
Lisbon, 75
Montreal, 17
Naples, 231
Newport News, 20
New York, 129 20
Philadelphia, 149
Seville, 61

Boracic Acid— 7 c. 2 q. £5

Borax— 1 t. £30
Genoa, 9 c. 14
Rotterdam, 2 1 q. 4

Borax— 5 t. £100
Piraeus, 12 c. 2 q. 11
Stettin, 6 7 2 128
New York, 10 25
Leghorn, 3 8 3 68
Genoa, 2 3 2 40
M. Video, 7 3 3 130
Genoa, 7 148
Sydney, 29 2 2 325
Montreal, 13 13 272
Rotterdam, 13 13 272

Calcium Chloride— 11 t. 14 c. £23
Quebec, 7 6 15
Montreal, 3 6

Carbolic Acid— 10 c. 2 q. £5
Shanghai, 1 t. 40
Calcutta, 7 39
Oporto, 2 5 2 88
Odessa, 2 2 2 94
New York, 10 cks. 2 2 2 232
Rouen, 3 10 3 10
Bathurst, 1 cs. 10

Caustic Potash— 1 t. 16 c. £52
Baltimore, 1 26
Melbourne, 1 9 37
Barcelona, 5 3 160
Hamburg, 5 3 160

Caustic Soda— 100 dms. 81
Alexandria, 81
Amsterdam, 55
Bahia, 95
Baltimore, 455 46 brls 43cs.
15 bxs. 103 cks.
Barcelona, 350 103 cks.
Bilbao, 8
Beyrouth, 50
Boston, 100 10
Cartagena (Sp.), 26
Catania, 10
Dunedin, 10
Fiume, 30
Galatz, 18
Genoa, 153
Halifax, 100
Hamburg, 20
Havana, 12
Hong Kong, 19
Huelva, 3
Jaffa, 100
Kongsberg, 18
Larnaca, 11
Leghorn, 64
Libau, 18
Malaga, 30 15
Maranham, 5
Melbourne, 7 cs. 5
Messina, 10
M. Video, 50
Montreal, 58
Naples, 20
N. Orleans, 100
Pelotas, 150
Philadelphia, 1,753
Port Natal, 20 bxs.
Rangoon, 7
Riga, 629
Rio de Janeiro, 25
Rotterdam, 35
Santos, 10
San Francisco, 20 30 cs.
Seville, 80
Sydney, 140
Varna, 52
Yokohama, 52

Chemicals (otherwise undes.)— 1 t. 1 c. £30
Stettin, 1 15 46
Barcelona, 9 10 236
Odessa, 3 2 q. 108
Bombay, 2 66
Alexandria, 12 12 64
Montreal, 12 12 64

China Clay— 120 cks.

Boston, 1,307 200 bgs.
Maranham, 20
Melbourne, 120
Montreal, 80
New York, 210
Philadelphia, 200
Rio de Janeiro, 40
Sydney, 40

Coal Products—

Aniline Colours— 4 cks.

Aniline Dyes— 1 cs.

Aniline Oil— 15 dms.

Aniline Salts— 5 cs.

Anthracene— 1 pn.

Creosote Oil— 76 brls.

Hang Kong, 40 dms.

Lisbon, 350 brls.

Pitch— 20 brls.

Bourgas, 1,185 t. 20 brls.

Cete, 1,803 902 bgs.

Coronol, 10

Galatz, 20 cks.

Port Natal, 2

Rouen, 2

Tar— 1 brl.

Caldera, 25

Curacao, 20

Galatz, 20

Libail, 20

Philadelphia, 200

Port Natal, 5 12 cks.

St. John's, N'dld, 5 5 li-brls.

Coal Products (otherwise undes.)—

Bombay, 5 cs.

St. John's, N'dld, 10 cs. 10 li-brls.

Copper Sulphate—

Libau, 1 t. 7 c. 2 q. £22

Barl, 12 1 2 204

Beyrouth, 15 13

Patras, 3 53

Porto Alegre, 1 10 8

Sierra Leone, 7 19 143

Yokohama, 2 43

Madras, 20 2 360

Trieste, 3 2 49

Messina, 19 17 2 329

Charente, 13 16 2 219

Newfairwater, 15 237

Tarragona, 10 10 178

Paris, 69 12 1,203

Marseilles, 2 12 1 44

Piraeus, 5 80

La Pallice, 58 4 3 999

Rouen, 29 19 2 506

Naples, 20 1 338

Fiume, 25 2 1 418

Valencia, 20 14 1 346

Oporto, 24 18 3 436

Lisbon, 172 14 2,879

Venice, 501 11 3 8,588

Cette, 79 11 2 1,301

Leghorn, 183 18 2 3,640

Nantes, 212 13 9 932

Genoa, 598 13 9 932

Bordeaux, 598 13 9 932

Copperas—

Larnaca, 3 t. 9 c. 1 q. £7

Alexandria, 14 10 28

Cream of Tartar—

Yokohama, 1 c 2 q. £7

Maranham, 1 1 6

Disinfectants—

Saltpond, 5 c. £19

Kurrachee, 2 t. 5 11

Montreal, 4 1 q. 8

Algoa Bay, 4 1 8

Calcutta, 4 14 74

Para, 10 20

Gypsum—

Rio de Janeiro, 2 t. £5

Iron Oxide—

New York, 21 t. 9 c. £41

Lime—

Gd. Popo, 4 t. £40

Magnesia—

B. Ayres, 22 cs. 1 ck.

New York, 10

Magnesite—

Antwerp, 101 t. 3 c. 1 q. £185

Magnesium Carbonate—

Tampico, 10 cs.

Magnesium Chloride—

Rouen, 5 t. 3 c. 3 q. £12

Magnesium Sulphate—

B. Ayres, 25 kgs.

Manure—

St. John, Nfld., 3 t. 10 c. £35

Muriatic Acid—

Pernambuco, 1 t. 3 c. £13

Oxalic Acid—

Baltimore, 5 t. 19 c. 2 q. £407

Boston, 3 5 3 100

Paint—

Acajutla, 3 cks. 22 kgs. 10 brls.

Alexandria, 30 dms.

Antwerp, 7 10

Bangkok, 25 25

Beyrout, 40

Bombay, 25 cs.

Callao, 15

C. C. Castle, 93

Colon, 400

Constantinople, 2

Coquimbo, 26 cs.

Coronel, 9

Curacao, 9

Galatz, 11

Gibraltar, 9

Hamburg, 50 bgs. 7

Havana, 10 cs.

Hong Kong, 114

Lagos, 2

La Libertad, 7 cs. 6

Limassol, 3

Lisbon, 3

Maranham, 9 pks. 4

Matanzas, 2

M. Video, 38 cs.

Naples, 3 brls.

New York, 6 49

Old Calabar, 40 dms.

Pernambuco, 11

Pirassu, 70

Rio de Janeiro, 150 15 brls.

Rotterdam, 1 cs.

St. John's, Nfld., 56

St. Nazaire, 20

Salt Pond, 200

San Juan, 250

San Francisco, 6

Savanna, 1

Sierra Leone, 37 bgs.

Shanghai, 50 dms.

Sydney, 2

Vera Cruz, 8 120

Valparaiso, 45 1 bx.

Painters' Colours—

Alexandria, 4 cs.

Algoa Bay, 54 kgs. 2 brls.

Antwerp, 8 cks.

Baltimore, 100

Bahia, 1 4 11

Bombay, 1,389

B. Ayres, 102 40 36

Calcutta, 50

Colon, 40 dms. 11

Coquimbo, 103 15

Ghent, 43

Hamburg, 100 bgs.

Havana, 3

Hong Kong, 80 dms.

Kingston, Ja., 6 cs. 5 brls.

Maoras, 31

M. Video, 20 crts.

N. Orleans, 300

Port Natal, 64 1,016 68 dms.

Paraffin Wax—

Leghorn, 30 bgs.

Phosphorus—

Kobe, 17 c. £185

Hiogo, 2 t. 5 493

Yokohama, 10 139

Hong Kong, 1 13

Potash—

B. Ayres, 17 c. £10

Potassium Bichromate—

Alexandria, 4 c. £8

Vera Cruz, 2 t. 89

Oporto, 4 8 187

Potassium Chlorate—

Konigsberg, 15 c. £23

B. Ayres, 5 10

Pernambuco, 1 t. 10 60

Kalmar, 2 10 87

Venice, 4 7

Hiogo, 21 5 606

Gutajewsky, 5 166

Hong Kong, 1 34

Kobe, 2 10 85

Sydney, 5 163

Naples, 1 31

Potassium Prussiate—

Genoa, 4 t. 19 c. £126

Salt—

Amsterdam, 110 t.

Antwerp, 300

Baltimore, 378

Boston, 250

Brisbane, 168 12 c.

B. Ayres, 63 7

Calcutta, 987 17

C. C. Castle, 1,000 bgs.

Coquimbo, 1 t. 11

Corral, 8

Egwanga, 30

Ghent, 200

Halifax, 653

Kingston, Jam., 157 8

Lagos, 100

Montreal, 235 3 cs.

New York, 75

Old Calabar, 70 5

Philadelphia, 35

Pt. Natal, 192 10

Porto Novo, 25

Quebec, 612 10

Richibucto, 220

Rio de Janeiro, 2 10

St. Petersburg, 233

Shanghai, 8 2

Sydney, 14 5

Talcahuano, 1 1

Sydney, 1 10

Wellington, 5

Saltpetre—

Maranham, 19 c. 3 q. £21

Para, 2 t. 41

Pernambuco, 6 19 1 155

Satellite—

Melbourne, 21 t. 1 c. 2 q. £58

Sheep Dip—

E. London, 100 dms. £10

M. Video, 2 t. 15 c. 1 q. 32

Calcutta, 2 16 63

Rangoon, 16 1 19

B. Ayres, 6 169

Soap—

Accra, 201 bxs

Adelaide, 15

Alexandria, 48

Algoa Bay, 910

Amboina, 1 500

Amsterdam, 315 cs.

Antofagasta, 1

Barbadoes, 600

Batavia, 1,000

Bombay, 795

B. Ayres, 3

Calcutta, 25 brls. 950 bdls. 47

Cape Town, 1,376

Cartagena, W.I., 2

Corfu, 4

Demerara, 758

Delagoa Bay, 1,750

E. London, 425 13

Elmina, 100

Genoa, 130

Ghent, 60

Gibraltar, 350

Gd. Canary, 499

Gd. Lahou, 150

Guadeloupe, 500

Hamburg, 175

Hong Kong, 607

Iquitos, 50

Karachi, 500

Kingston, 2,690 5

Lagos, 240

Madras, 37

Malta, 30

Manaos, 770

Mauritius, 500

Montego Bay, 100

Montreal, 1,151

Mossel Bay, 375

Oporto, 10

Para, 1,000

Penang, 16

Pt. Natal, 902 13 40 dms.

Quebec, 16 3 cs.

Rangoon, 75 2

St. Thomas, 1,625

Sandy Point, 5

Sierra Leone, 33

Shanghai, 2,535

Singapore, 2,140 3,500

Sydney, 500

Teneriffe, 700

Trinidad, 490

Valparaiso, 1,111

Zanzibar, 490

Soda Alkali—

Genoa, 64 brls. 10 cks.

Leghorn, 153 10

Malta, 14

Newcastle, 30

Quebec, 74 bgs.

Rouen, 500 bgs.

Soda Ash—

Antwerp, 20 kgs.

Bahia, 20 kgs.

Baltimore, 456 26 tcs. 15 cks.

Barcelona, 55

Bari, 200

Boston, 360 33 134

Calcutta, 35 kgs.

Copenhagen, 1,599

Genoa, 100 36

Ghent, 300

Hamburg, 1,600

Launceston, 25

Libau, 5

Maranham, 50

Melbourne, 145 brls. 42

M. Video, 80

Montreal, 3 tcs. 15

Naples, 150

New York, { 2,352 95 43

Oporto, 4 kgs. 14

Philadelphia, 2,376

Riga, 100

Rio de Janeiro, 180

Rotterdam, 130

St. Petersburg, 156

Stettin, 395

Sydney, 11 brls.

Tampico, 13

Venice, 240

Wellington, 21

Soda Crystals—

Alexandria, 50 cks.

Boston, 125 bgs. 70

Bourgas, 30 kgs.

Coquimbo, 25

Gibraltar, 25

Malta, 50

M. Video, 67

Montreal, 175 220

Philadelphia, 280 brls.

Sydney, 140

Sodium Bicarbonate—

Adelaide, 20 kgs.

Alexandria, 40 brls.

Antwerp, 200 7 cks.

Batavia, 17

B. Ayres, 70

Calcutta, 500 5

Cape Town, 20 8 bgs. 2

Constantinople, 85

Dunedin, 100

Galatz, 101

Genoa, 50 18

Gutajewski, 200

Hamburg, 50

Konigsberg, 108

Libau, 20

Melbourne, 170 11

Messina, 40

Montreal, 330 100 22

Nantes, 15

Newcastle, 156 30

N. S.W., 420

Odessa, 240

Paris, 240

Rio de Janeiro, 20

Rouen, 42

Santiago De Cuba, 20

Singapore, 20

Sydney, 910 50 10

Trieste, 50

Valencia, 80

Varna, 50

Wellington, 60 14

Sodium Bichromate—

Oporto, 2 cs.

Sodium Carbonate—

Boston, 112 brls.

New York, 156 225 dms.

Rotterdam, 50

Sodium Chlorate—

Montreal, 40 kgs. 12 brls.

Rotterdam, 1

Sodium Silicate—

Kingston, Jam., 10 brls.

Pisco, 7

Sodium Sulphate—

B. Ayres, 20 brls.

Copenhagen, 87 bgs.

Starch—

Aviles, 40 cs.

Malaga, 20 sks.

Oporto, 30 bgs.

Strontia—

Malta, 1 kg. £5

Hamburg, 60 t. 7 c. 500

Sulphur—

Old Calabar, 2 t. 4 c. 2 q. £1

Lisbon, 2 4 3 17

Pernambuco, 2 4 3 17

Sulphuric Acid—

Yokohama, 1 c. 2 q. £2

Maranham, 18 10

Superphosphates—

Halifax, 10 t.

Las Palmas, 5

Arucas, 5

Gd. Canary, 5 10 c.

Nantes, 97 7

Is (otherwise undescribed)

am, 39 ples.

1 cs.

131

1,799 sbs. 4

gen, 40 cks. 10

29 8 525

m, 5

arg, 12 8 7

t, 10 12

201

m, 45 2 20

am, 679 c.

490

ia, 39

inople, 100

376

s, 1,091

m, 199

m, 440

m, 955

m, 304

Is (otherwise undescribed)

am, 45 cks.

51

2 cs.

m, 1

3

1 brl.

8 cks.

k, 45

Oil—

am, 102 c.

36

f, 36

69

19

ia, 1,310

gen, 64

m, 833

t, 279

m, 156

f, 270

200 bgs.

259 t.

330

4 dms.

2 cks. 2 cs.

Colours—

138 cks. 1 cs. 54 dms.

20 9 80

ia, 22 3 12

gen, 4 3 1 pk.

am, 1 20 dms

m, 1

g, 67 16

erg, 5

rk, 536

qty. 1

50

m, 12 1 150 t.

ste—

erg, 7,619 bgs.

370 t.

5 cs.

m, 3

am, 1

lam, 49 cks.

t, 26

am, 44

lam, 18 cks.

rg, 4

agen, 25

t, 25

rg, 8

am, 20

1 ck. 5 cs.

2

nia, 1

agen, 1

am, 5

1 dm.

am, 3

2

GLASGOW.

Week ending May 6th.

Ammonium Sulphate—

Baltimore, 50 t. 18 c.

Rotterdam, 10

Aniline Salt—

U.S.A., £35

Anhydrous Ammonia—

Hankow, £20. 11s.

Bleaching Powder—

Calcutta, 78 t. 18 c.

Boracic Acid—

Hiogo, £67. 18s.

Borax—

Melbourne, £46

Chloroform—

Adelaide, £29. 15s.

Coal Products—

Benzol

Hamburg, 24 t. 15 c.

Rotterdam, £150

Creosote Oil

France, £1,182. 10s.

Hamburg, 10 t. 4 c.

U.S.A., £75

Naphtha

Troyville, 34 t. 15 c.

Pitch

France, £213

Italy, 329

Bombay, 130

Canada, 25

Portugal, 106

U.S.A., 70

Troyville, 520 t.

Pitch and Tar

Bombay, £256

Tar

Christiania, 80 brls.

Bombay, £20

Kurrachee, 72

U.S.A., 123

Coal Products (otherwise undes.)—

Rotterdam, £45

Dyestuffs (otherwise undescribed)

Lisbon, £23

Christiania, £11. 10s.

Extracts—

Lisbon, £64

Stockholm, £17. 10s.

Victoria, £41

Farina—

Rio de Janeiro, £30

Lead Nitrate—

Canada, 2 t. 16½ c.

Linseed Oil—

Algoa Bay, 19¾ c.

Hong Kong, 6 t. 3½

St. John's, Nfld., 2 5½

Melbourne, 5

Logwood—

Lisbon, £84. 11s.

Paint—

Guayaquil, £60. 10s.

Hong Kong, 30 10

Limon, 32 17

Penang, 24

Christiania, 5

Painters' Colours—

Bahia, £45

Hong Kong, 168

Huelva, 24

Jamaica, qty.

Bombay, 183

Melbourne, "

Sydney, "

Paraffin Wax—

Hiogo, £145

Italy, 109

Sicily, 20

Potassium Bichromate—

Antwerp, £332

Canada, 536

Hiogo, 434

Italy, 244

Rotterdam, 206

Amsterdam, qty.

Victoria, 56

Potassium Cyanide—

Valparaiso, £270

Soap—

Bombay, 2 t. 1¾ c.

St. John's, Nfld., 8½

Sodium Bichromate—

Antwerp, 2 t. 4 c.

Canada, 16 2½

Italy, 1 18¾

Lisbon, 15

Sodium Sulphate—

Stockholm, £9

Starch—

Lisbon, £27

Rio de Janeiro, 54

Rotterdam, 5 c.

Sulphuric Acid—

Natal, £30

Tallow—

Rotterdam, 5 t. 18 c.

Tannic Acid—

Lisbon, £21

Treacle—

Natal, 1 t. 13 c.

St. John's, Nfld., 13 12

Christiania, 3

Hamburg, 3

Zinc White—

Hong Kong, £63

TYNE.

Week ending May 1st.

Alkali—

Copenhagen, 1 t. 3 c.

Amsterdam, 11 7

Rotterdam, 5 15

Christiania, 18 6

Alum—

Aalborg, 1 t. 1 c.

Alum Waste—

Copenhagen, 3 t. 6 c.

Ammonia—

Barcelona, 2 t. 16 c.

Ammonium Chloride—

Gothenburg, 1 t. 15 c.

Ammonium Sulphate—

Odense, 5 t.

Anthraccene—

Rotterdam, 50 t. 3 c.

Antimony—

New York, 55 t.

Montreal, 9

Hamburg, 7 10 c.

Bergen, 6

Arsenic—

Barcelona, 10 c.

Barium Binoxide—

New York, 18 t. 19 c.

Venice, 31 1

Barium Carbonate—

New York, 25 t. 15 c.

Bleaching Powder—

New York, 22 t. 15 c.

Genoa, 4 18

Antwerp, 30 14

Hamburg, 3 17

Aarhus, 2 14

Amsterdam, 13 4

Rotterdam, 14 3

Odense, 10 3

Gothenburg, 4 19

Christiania, 61 16

Caustic Soda—

Copenhagen, 3 t. 11 c.

New York, 416 18

Genoa, 37 7

Antwerp, 14 15

Arendal, 27 16

Amsterdam, 7 10

Rotterdam, 21 0

Gothenburg, 5 2

Bergen, 1 3

Smyrna, 43 3

Christiania, 3 18

Gypsum—

New York, 110 t. 1 c.

Hypsulphate—

New York, 105 t. 6 c.

Lamp Black—

Amsterdam, 10 c.

Linseed Oil—

Orebak, 16 c.

Montreal, 5 t.

Litharge—

New York, 2 t. 1 c.

Montreal, 13 1

Christiania, 12

Gothenburg, 2 13

Magnesia—

Copenhagen, 2 t. 1 c.

New York, 6

Genoa, 7 10

Hamburg, 1 10

Barcelona, 1 15

Smyrna, 1 10

Manganese—

Christiania, 13 c.

Manure—

Valencia, 214 t.

Paint—

Orebak, 11 c.

Antwerp, 4 t. 7

Hamburg, 1 1

Christiania, 3

Phosphate of Lime—

Valencia, 59 t. 10 c.

Rosin Oil—

Hamburg, 6 t. 2 c.

Soap—

Genoa, 1 c.

Soda—

Seville, 10 t. 3 c.

Genoa, 15 4

Antwerp, 3 11

Christiania, 7 16

Amsterdam, 55 4

Rotterdam, 2 17

Smyrna, 24 7

Soda Ash—

New York, 16 t. 16 c.

Antwerp, 3 10

Gothenburg, 55 6

Venice, 29 19

Christiania, 5 14

Sodium Hypsulphate—

New York, 25 t.

Sodium Silicate—

Christiania, 6 c.

Sodium Sulphate—

Venice, 5 t. 2 c.

Christiania, 6

Sodium Sulphite—

Smyrna, 1 t.

Sulphur—

Gothenburg, 105 t.

Copenhagen, 10

Christiania, 350

Superphosphates—

Christiania, 15 t.

Valencia, 16

Tar—

Orebak, 12 c.

Genoa, 1

White Lead—

New York, 10 t. 5 c.

Montreal, 1 6

Gothenburg, 2 11

Smyrna, 5 4

GOOLE.

Week ending April 28th.

Alkali—

Amsterdam, 38 cks.

PRICES CURRENT.

WEDNESDAY, MAY 12TH.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	& 8/9
" Glacial	"	40/-	
Arsenic S.G., 2000°	"	1	4 0
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
" (Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1½
Oxalic	nett	0	0 3½
Phosphoric, 1750°	"	0	0 11½
Picric	"	0	0 11
Sulphuric (fuming 50 %/.)	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" " 150°	"	1	5 0
" (free from arsenic, 145°)	"	1	7 6
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 2½
Tartaric	"	0	1 1
Arsenic, white powdered	nett per ton	23	5 0
Alum (loose lump)	"	4	10 0
Alumina Sulphate (pure)	"	4	2 6
Aluminoferrous	"	2	3 6
Aluminium (Ingot metal 98/99¼ %	nett per cwt.	7	17 6
Ammonia, Anhydrous	per lb.	0	1 3
" 880=28° B.	"	0	0 2½
" =24° B.	"	0	0 13½
" Carbonate	nett	0	0 3
" Muriate	per ton	18	7 6
" (sal-ammoniac) 1st & 2nd	per cwt.	33/-	& 31/-
" Nitrate	per ton	32	0 0
" Phosphate	per lb.	0	0 4½
" Sulphate (grey) London	per ton	7	10 0
" (grey) Hull	"	7	11 3
Aniline Oil (pure)	per lb.	0	0 7
Aniline Salt	"	0	0 6½
Antimony	per ton	30	15 0
" (tartar emetic)	per lb.	0	0 9
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	12 6
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	42/6	to 65/-
Bleaching Powder, 35 %	nett	6	7 6
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	12	0 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	"	15/-	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	nett per lb.	0	0 6¾
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0 7
Benzol, 90's	per gallon	0	1 10
" 50/90	"	0	2 1
Carbolic Acid (crude 60°)	per gallon	0	2 7
" (crystallised 40°)	per lb.	0	0 8½
" (liquid 95/97 %)	per gallon	0	1 2
Creosote (ordinary)	"	0	0 2
" (filtered for Lucigen light)	"	0	0 2½
Crude Naphtha 30 % @ 120° C.	"	0	1 0
Grease Oils, 22° Tw.	per ton	2	15 0
Pitch, f.o.b. Liverpool or Garston	"	1	2 6
Solvent Naphtha, 90 % at 160°	per gallon	0	1 8
Copper	per ton	48	15 0
" Sulphate	"	16	10 0
" Oxide (copper scales)	"	44	10 0
Glycerine (crude)	"	31	0 0
" (distilled S.G. 1250°)	"	62	0 0
Iodine	nett, per oz.	0	0 7½
Iron Sulphate (copperas)	per ton	1	10 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	13	0 0
" Litharge Flake (ex ship)	"	14	15 0
" Acetate (white ")	"	22	0 0
" " brown ")	"	15	10 0
" Carbonate (white lead) pure	"	16	15 0
" Nitrate	"	19	0 0

Lime, Acetate (brown) (ex ship)	per ton	5	8
" (grey) (ex ship)	"	5	8
Magnesium (ribbon and wire)	per oz.	0	0
" Chloride (ex ship)	per ton	1	1
" Carbonate	per cwt.	1	1
" Calcined Magnesia	per ton	9	9
" Sulphate (Epsom Salts)	per ton	2	2
Manganese, Sulphate	"	16	16
" Borate	per cwt.	2	2
" Ore, 70 %	per ton	3	3
Methylated Spirit, 61° O.P.	per gallon	0	0
Naphtha (Wood), Solvent	"	0	0
" " Miscible, 60° O.P.	"	0	0

Oils:—

Cotton-seed	per ton	15	15
Linseed	"	16	16
Petroleum, American	per gallon	0	0
Stearine	per ton	19	19
Phosphorus (yellow)	per lb.	0	0
" (red)	"	0	0
Potassium (metal)	per oz.	0	0
" Bichromate	nett per ton	0	0
" Carbonate, 90% (ex ship)	per ton	17	17
" Chlorate	per lb.	0	0
" Cyanide, 98%	"	0	0
" Hydrate (Caustic Potash) 90 %	per ton	24	24
" " (Caustic Potash) 75/80 %	"	20	20
" " (Caustic Potash) 70/75 %	"	19	19
" Nitrate (refined)	per cwt.	1	1
" Permanganate	per cwt.	1	1
" Prussiate Yellow	per lb.	0	0
" Sulphate, 90 % (ex ship)	per ton	9	9
" Muriate, 80 % (do.)	"	8	8
Silver (metal)	per oz.	0	0
Sodium (metal)	per lb.	0	0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	4
" " (Caustic Soda-ash) 48 %	"	4	4
" " (Carb. Soda-ash) 48 %	"	4	4
" " (Alkali) 58 %	"	13	13
" " (Soda Crystals)	"	13	13
" Acetate (ex-ship)	"	13	13
" Arseniate, 45 %	"	15	15
" Chlorate	per lb.	0	0
" Borate (Borax)	net, per ton	16	16
" Bichromate	per lb.	0	0
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	8	8
" " (74 % Caustic Soda)	"	8	8
" " (70 % Caustic Soda)	"	7	7
" " (60 % Caustic Soda)	"	6	6
" " (pure liquor 90° Tw.)	"	12	12
" " 77/78 % powdered (99 % hydrate)	"	13	13
" Bicarbonate	"	6	6
" Hypsulphite	"	5	5
" Manganate, 25%	"	15	15
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0	0
" Nitrite, 98 %	per ton	30	30
" Phosphate	"	11	11
" Silicate (glass)	per ton	4	4
" " (liquid, 100° Tw.)	"	3	3
" Stannate, 40 %	per cwt.	3	3
" Sulphate (Salt-cake)	per ton	0	0
" " (Glauber's Salts)	"	1	1
" Sulphide	"	6	6
" Sulphite	"	5	5
Strontium Hydrate, 100%	"	8	8
Sulphocyanide Ammonium, 95 %	per lb.	0	0
" Barium, 95 %	"	0	0
" Potassium	"	0	0
Sulphur (Flowers)	per ton	7	7
" (Roll Brimstone)	"	6	6
" Brimstone: Best Quality	"	4	4
Superphosphate of Lime (26 %	"	3	3
Tallow	"	18	18
Tin Crystals	per lb.	0	0
" English Ingots	per ton	65	65
Zinc Spelter	"	17	17
" Chloride (solution, 100° Tw.)	"	5	5

THE HEMICAL TRADE JOURNAL

AND
OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

522.

SATURDAY, MAY 22, 1897.

Vol. XX.

Contents.

PAGE	PAGE
Committee	345
Y Jottings	346
Steel Institute	346
List	347
Latest Complete Speci-	347
Exports for April	347
Applications of Electricity	348
Life	349
Oranda	350
Companies	351
	351
Tar and Ammonia Products	352
Miscellaneous Chemical Market ..	352
Report on Manure Material	352
The Metal Markets	352
Hull Paint, Oil, and Colour Report	352
Liverpool Oil and Colour Market ..	353
Tyne Chemical Report	353
West of Scotland Chemicals	353
Gazette Notices	353
New Companies	353
Imports	354
Exports	356
Prices Current	360

ADVERTISEMENT.

ANALYSER, with wide experience in the Analysis of Manufacture of Acids, Alkalies, Foods, Drugs, Artificial Manures, etc., etc., desires Situation as Chemist, Manager, or Superintendent. M.C.S., "Chemical Trade Journal Office, Manchester.

T BONE CHARCOAL." 19 to 20 tons available. Suitable for Paint Manufacturers; splendid colour. Price 68s. on rails in Liverpool.—H. W. Brown and Son, 71, Marybone,

Partnership or Sale of Business.—A respectable established London Lubricating Oil and Grease Manufacturing Business, connection, wishes to meet an respectable party in the same or similar line with a view to amalgamate, or, if preferred, to sell the Good-will, Stock, Machinery, etc., as a going concern on favourable terms.—Principals apply to "P.A.R.," c/o Deacon's, Leadenhall-street, London.

Notices.

Communications for the *Chemical Trade Journal* should be sent by Cheques and Post Office Orders made payable to—

S BROS., 32, Blackfriars Street, MANCHESTER

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Advertisements.

Advertisements of Situations Vacant, Premises on sale or To be Let, and Wants, and special Articles for Sale by Private Contract are accepted in the *Chemical Trade Journal* at the following rates:—

30 Words and under..... 2s. 0d. per insertion.
Each additional 10 words..... 0s. 0d.

Advertisements of Situations Wanted are inserted at one-half the rate when prepaid, viz.:—

30 Words and under..... 1s. 0d. per insertion.
Each additional 10 words..... 0s. 3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements prepaid, are charged at the Tariff rates, which will be forwarded on request.

Advertisements intended for insertion in the current week's issue should be sent to the office by **Thursday morning** at the latest.

Terms of Subscription, commencing at any date, of the *Trade Journal*,—payable in advance,—including postage of the world, are as follows:—

Half-yearly (52 numbers) 12s. 6d.

Yearly (26 numbers) 6s. 6d.

Quarterly (13 numbers) 3s. 6d.

CURRENT TOPICS.

PURE MILK.

DURING the last six or seven years we seem to have been learning a great many lessons from our Continental neighbours, and in some cases there appears to be a reasonable prospect of our doing what is even better—namely, acting on them.

It is certainly an encouraging sign that a large and thickly populated centre like Manchester should be taking the steps it is, with a view to obtaining a pure milk supply for its citizens—pure, that is to say, both chemically and in the bacteriological sense.

The idea, as propounded, would undoubtedly seem too Utopian to most people, but for the benefit of those dubious individuals who never believe that anything out of the commonplace in the way of sanitary reform can succeed, we will cite a few facts connected with the Copenhagen scheme, on which the proposed Manchester system is based.

The Copenhagen company supplies milk obtained from herds and dairies, fed and conducted under certain conditions which ensure good, rich milk, so collected and delivered as to avoid all chance of infection. We cannot here go into the details as to the qualities they supply, but it may be mentioned that sterilization is not obtained by boiling, but by refrigeration, whereby the flavour of the milk is impaired to a far smaller degree than by the former treatment. Under this arrangement the best milk can be sold at one shilling a gallon, while ordinary, or "half-skimmed," sells at fivepence per gallon.

Moreover the principles of the company are semi-philanthropic instead of being purely mercantile. After paying 5 per cent. any further profit is devoted to the development of the business and the cheapening of the supply.

In the foregoing we have recounted what is now actually being done. It is no visionary picture, but a lively reality, substantiated by the fact that contrary to the proleptic utterances of its opposers, the company has been a genuine financial success. At the same time it has done much good outside its own particular sphere by maintaining a high standard to which the majority of the outsiders found it necessary to rise—and have risen.

It is on lines similar to these that a company has been formed in Manchester to give that City the benefits that the sister company has given Copenhagen. The task will of course be heavier than that undertaken by the original company, but if only 500 gallons out of the 22,000 consumed daily in Manchester and Salford, are supplied on the new system it will be an achievement. With Thirlmere water and such a milk supply system it will behove the Metropolis to lay to heart the comparison with its own supplies.

AN EDUCATIONAL HINT.

It is a common complaint at many of our technical schools that the material on which they have to work is so raw that often the technical knowledge imparted cannot be made full use of, owing to inability in the execution of the necessary calculations and what not.

On the other hand, youths fresh from a place of elementary education are often generally absolutely ignorant of anything relating to industrial matters, and frequently fail to benefit materially by the technical education they receive. They know facts, but have no notion why those facts are of value, or how they apply to the production of everyday things. Save in the case of a few glaring exceptions there is no mental connection between the one and the other. The means are known, but are only hazily associated with the result.

In strong contrast to these conditions we have the German system, it being the fixed rule with at least one important technological institute that students must have been employed in a works for one year before attending the technical school. Knowing the type of technologist the German schools produce, the thought suggests itself: At which end should our educational reform begin in the matter of technical education—the top or the bottom?

RIBBLE JOINT COMMITTEE.

A MEETING of this committee was held on Monday, last week, at the County Offices, Preston. Alderman J. Burrow presided, and there were also present Messrs H. T. Parke, Lightbown, Eastwood, Phillips, P. S. Park, and Rawcliffe.

The report of the chief inspector was received and dealt with. With regard to Clitheroe municipal borough it appeared that the effluent from Messrs. Crabtree's brewery yet entered the river without treatment through one of the Corporation's sewers. The consideration of the matter was adjourned for three months.

T. A. Gatty and Co., dyers, Higher Walton.—The samples examined and observed since reporting upon these works last had been unsatisfactory. Adjourned for two months.

Potter and Co., paper makers, Hollins Mill, Darwen, wrote regretting that samples of their effluent were considered to be unsatisfactory, as so many of the samples taken had been eminently satisfactory. They promised to do all in their power to carry out still further improvements. Adjourned for three months.

Carlisle, Son and Co., paper makers, Clitheroe.—Samples examined since the last adjournment in March had been good. Adjourned for three months.

Peebles and Co., Limited, Whiteash Paper Mill, Church.—The samples drawn from the tanks and filters at Whiteash within the last six months had not been nearly so free from suspended matter as were those drawn earlier soon after the completion of the tanks. Adjourned for one month.

Hindle and Co., calico printers, Sabden.—A complaint was made concerning the effluent from this mill in January. It was then adjourned until March, when another complaint was made. Samples drawn since that date again give cause for complaint, and again owing to the common reason, negligence to maintain plant or apparatus in themselves satisfactory. The inspector adds, "I am afraid very prompt action will need to be taken in a few cases before manufacturers will understand that the work of this committee is advanced no further by good and extensive plant neglected than by really inefficient plant such as one often found years ago worked to the utmost advantage." Adjourned for one month.

Roach Bridge Paper Co.—The only sample examined since the last adjournment was unsatisfactory. Adjourned for one month.

J. H. Calvert and Bros., calico printers, Clayton-le-Moors.—Although the results up to the present were not satisfactory, it was pleasant to be able to state that an honest and very creditable attempt was being made here to produce a satisfactory effluent. Adjourned for three months.

The case of F. Steiner and Co., dyers, Church, was adjourned for two months. The cases of Wilkinson and Co., indigo extractors, Oswaldtwistle; W. Metcalf, tar distiller, Church; W. H. Dale, pigment manufacturer, Lower Darwen; and Isherwood and Brindle, paper makers, Samlesbury, for four months. The following cases were adjourned for six months:—Pilkington and Co., soap makers, Church; Lancashire Brick and Terra Cotta Company; Walmesley and Co., Houghton; and A. Golzsch, gut manufacturer, near Blackburn.

A deputation from the Horwich Urban District Council, headed by Mr. Farmer, waited upon the committee, proceedings having been threatened through river pollution by the sewage of that town. Mr. Farmer explained that his Council had made an application to the Local Government Board for a loan to extend the works, and had been refused. The deputation was informed that further action should be taken at once to get a loan to abate the nuisance, and then adjourned for three months.

The other business before the committee was of a routine character.

Parliamentary Gossip.

THE SALT DUTY IN INDIA.

In the House of Commons last week, in answer to Sir W. Burn, who suggested that the salt duty in India should be reduced this year at least, in view of the sufferings of the poorer classes from famine,

Lord G. Hamilton said he was not aware there was, as a general feeling in India that the duty should be so reduced. However, a limitation for one year only were announced, enough, very much longer period would undoubtedly be drawn out of the otherwise passed into stock. The price of salt was, for the people, lower than 20, 30, or 40 years ago, and the incidence of the duty was about 5½d per head per annum. Under these circumstances he did not propose to issue any orders on the subject.

THE IRON AND STEEL INSTITUTE.

THE annual meeting of the Iron and Steel Institute was held last week in the theatre of the Institution of Civil Engineers, Westminster. Mr. Edward P. Martin presided.

The President, in his inaugural address, gave an interesting account of the progress made in iron and steel manufacture. Turning to competition, he said that our Continental competitors were making great progress. In a recent visit to Westphalia, and the German and French frontier, it was found that a large amount was being expended in bringing these works to a high state of efficiency. Krupp was constructing entirely new works on the Rhine. Wendel had recently erected large works at Hayange, so little expenditure they were able to change from the main heavy girders in one mill to sleepers, rails, or angles in any way was not an alarmist as to our industrial position, but the danger lay for any monopoly of manufactures remaining in any single country and England would have to accommodate itself to those manufactures for which her resources were best fitted. Although we made tremendous strides. Nothing had tended more to a greater change in the relative positions of works and markets than the reductions in the rates of freights. The freight of Spanish iron had been reduced from 18s. to less than 4s. per ton to British ports. Although we imported last year a million more tons of foreign iron than during the previous year, the scarcity of ore was still felt. The difficulty of getting an ample supply from Spain, the Mediterranean, or the Scandinavian districts was at present engaging the attention of ironmasters, not only in this country, but also in France and Germany. On the question of railway rates, the said American ore traffic was now being carried over some one-sixth of a penny per ton per mile for long distances; and the lowering of prices of raw materials was due as much to the paid to the cost of handling and transport as to cheap coke. This country could obtain the same low rates of freight on iron as were current in America, or even in Belgium and Germany. No country where materials for iron and steel making could be so cheaply assembled than in Great Britain. If our large population found remunerative employment, both it and capital would be able to compete with other countries. Europe had already experienced the competition of the United States in Canada, Japan, and elsewhere, unless large reductions were made in the existing rates of freight, it was impossible for the iron and steel manufacturers in this country to continue to reap the benefit of the great natural advantages its central position gave it, and of the paramount position it held as the great commercial centre of the world. It was evident that the cost of working the future mineral traffic, with increased competition, would be so largely reduced as to admit of a close approximation of English mineral rates of freight to those of the United States. They had the keen competition of other countries. The railways of the Continent were owned by the State, whose power was to utilise them as far as possible for the purpose of developing the resources of their respective countries. The great reductions had been made in the rates for this purpose practically amounting to a concession on the iron and steel industries, securing for them a monopoly position in the markets of the world, and unless the English companies also reduced their freights our own country would be handicapped.

The Patent List.

List is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Prevention. F. A. and D. Wadedell. 10,936. May 3.
and Washing Gases. F. J. Collin. 10,988. May 3.
on of Ozone. M. O. to. 11,010. May 3.
Hides. E. O. Daniel. 11,111. May 4.
ture of Carburetted Water Gas. A. C. Humphreys and A. C. m, Glasgow. 11,130. May 4.
ture of Carburetted Water Gas. A. C. Humphreys and A. C. m, Glasgow. 11,131. May 4.
and Calcining Minerals. G. H. Blenkinsop. 11,151. May 4.
Acid Gas Generators for Fire Extinction. J. P. Dupalet. 11,154.
ti-incrustant. W. J. Tranter and O. Howl. 11,172. May 5.
Liquids in Sewage Treatment, etc. G. T. Gillespy. 11,178.
sing Fused Zinc Chloride. F. M. Lyte. 11,190. May 5.
is for Obtaining Salt from Brine. W. Shedlock. 11,240. May 5.
ture of Hydrochloric Acid Free from Arsenic. J. R. Wyld, Kynaston, and the United Alkali Co., Ltd. 11,353. May 6.
g Substances Incombustible. A. Issel. 11,368. May 7.
d Filter Press for Sewage Sludge. C. J. Lomax. 11,374. May 7.
granular and Pulverulent Materials. H. McPhail. 11,449. May 7.
and Evaporating Liquids and Digesting Materials in Liquids. cPhail. 11,451. May 7.
ments in Filters. J. Wilson. 11,460. May 7.
ng Gold from its Solutions. C. P. Shrewsbury. 11,518. May 8.

FRAGMENTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

ments in Recovering Sulphur from Sulphuretted Hydrogen. ock and F. Hurter, both of 111, Exchange-buildings, Liverpool Pat. 13,844. June 23, 1896.

line, the process consists of passing sulphuretted hydrogen, ith sulphur dioxide, through a Claus kiln. It is carried out in wing manner. Alkali waste is treated with lime-kiln gases, a gaseous mixture containing 25 to 35 per cent. H_2S . This is ith air until the Claus kiln has a temperature of $400^{\circ}F$. to

Sulphur dioxide is then mixed with the H_2S in suitable pro- and the sulphur separating process proceeded with. If a amount of oxygen is used with the sulphur dioxide the kiln external heat. For this reason a mixture containing 12 to 13 SO_2 with 5 to 6 per cent. of oxygen, is found preferable, is obtained from roasting pyrites or zinc blende. If necessary is cooled to remove arsenic, and passed through a coke scrubber d with dilute vitriol to catch any dust and the last traces of

ments in the Treating of Sulphide Ores of Lead Preparatory melting the same, and incidentally in Obtaining Sulphurous T. Huntington and F. Heberlein, both of Pertusola, Spezia, Italy. Pat. 8,064. April 16, 1896.

sulphide of lead is mixed with calcium oxide, in proportion to unt of sulphur present, and heated slowly in a reverberatory to about $700^{\circ}C$., after which the mixture is allowed to cool about $500^{\circ}C$. At the first temperature it is supposed that dioxide is formed; this at the lower temperature attacks the phide, forming sulphate and lime. At this stage the mass is from the furnace, and subjected to a current of hot air. tion of the sulphur takes place, and fusion supervenes, pro- nally a mass of lead oxide with gangue, which can be smelted illic lead in the usual way. The sulphur dioxide given off can cted for the manufacture of sulphuric acid, or used in any other e way.

ed Process for Extracting Metals from Pyritic Ores by tment with Chlorine, and for Recovering the Chlorine oyed. Dr. O. Frölich, 5, Hohenzollernstrasse, Steglitz, Berlin. Pat. 13,371. June 17, 1896.

inely-ground ore is treated in a dry or slightly moist state with e. In extracting zinc from blende, when the above treatment n effected, the chlorides are dissolved out with a moderate of water, the solution being hastened by adding hydrochloric salt to the water. The solution is then electrolyzed, the zinc eposited, and the chlorine evolved passed on to a fresh batch of arious methods of treating complex ores are described. Pyritic ntaining gold and silver are moistened with hydrochloric acid,

and then chlorinated. The product is next treated with more hydro-chloric acid, giving a solution containing the majority of the gold and silver, besides the common metals.

It is not advisable to remove all the chlorine by electrolysis, on account of the cost, and also because the slightly chlorinated electrolyte can be used to wash freshly chlorinated ore.

Improvements in or Relating to the Precipitation of Precious Metals from their Cyanide Solutions. M. B. Zereiner, 15, Bernard-street, Russell-square, London. Eng. Pat. 12,255. June 4, 1896.

Sodium amalgam, made of about 5 parts of sodium in 10,000 of mercury, is passed through the cyanide solution in a fine and continuous shower. As the mercury collects at the bottom of the vessel in which the process is conducted, it is syphoned off, filtered, and the mercury pumped back to be re-amalgamated and used *de novo*. There is one figure.

Improvements in Dissolving and Drying Phosphates and other Substances. J. Milne, 1, St. Mary's-place, Inverurie. Eng. Pat. 12,765. June 10, 1896.

The dryer consists of a series of endless aprons travelling in a chamber through which hot air or furnace gases can be passed. The first apron is fitted with edge plates to retain the semi-liquid mass it receives from the hopper. The material passes from apron to apron until it is discharged at the bottom, in a dry state, into a spiral conveyor. There are three figures. For "supers" the contents of the mixer is charged straight into the hopper. At the high temperature the reaction is completed. Nine to thirteen per cent. of water is removed without loss of acid. The "super" does not go pasty on grinding as was the case formerly, and it can be mixed with sulphate or potash without forming lumps.

Process and Apparatus for Removing Graphite Crusts from the Interior of Gas Retorts. A. Roedel, Worms a/Rhine. Eng. Pat. 5,149. February 25, 1897.

Cold air is introduced into the retort through a jacketted tube in which water keeps circulating. The crust of carbon then cracks off in large pieces, and can be removed. There are two figures. Apart from the simplicity of the process and apparatus, the fact that the pieces of carbon obtained are large is claimed as an advantage, owing to the increased industrial value of this product.

IMPORTS AND EXPORTS FOR APRIL.

THE Board of Trade returns are more encouraging, especially the exports. In the *imports*, chemicals were higher in value and oils lower. Amongst *export* items there are many increases. There was more salt and alkali, the U.S.A. taking a larger portion of the latter.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1896.	1897.
Margarine	Cwt. 72,574	77,819
Copper Ore and Regul.	Tons. 13,295	8,912
Pyrites	" 64,701	49,512
Tin	Cwt. 36,518	41,118
Alkali	" 16,742	11,581
Brimstone	" 29,903	29,015
Dyes, Coal Tar	£. 57,247	56,134
Saltpetre	Cwt. 39,608	35,258
Petroleum	Gall. 14,380,459	12,990,838
Turpentine	Cwt. 2,547	12,342
Guano	Tons. 225	350
Nitrate of Soda	" 11,173	12,958
Paraffin	" 50,528	66,617
Rosin	Cwt. 196,319	67,541
Tallow and Stearine	" 200,828	102,008
Oil Seed Cake	Tons. 26,680	27,490
Wood Pulp	" 24,197	25,610

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1896.	1897.
Alkali	Cwt. 464,040	477,566
Cement ..	Tons. 30,150	25,908
Coal and Coke	" 2,651,260	2,825,593
Copper, all kinds	Cwt. 99,515	71,548
Iron and Steel	Tons. 289,333	331,038
Chemical Manures	" 25,448	34,239
Oils, seed	" 5,138	5,644
Salt	" 46,040	74,558

INDUSTRIAL APPLICATIONS OF ELECTRICITY.

[SPECIALLY CONTRIBUTED].

WHEN James Watt in 1851 obtained a patent for numerous applications of electricity to chemical and metallurgical purposes, he doubtless expected that the development of this branch of electrical science would be as rapid as that which was about this time occurring in electric-telegraphy.

If he had such hopes, however, they were doomed to disappointment. The development of electro-chemistry and electro-metallurgy has been exceedingly slow; and it has been reserved for the closing years of the century to witness the industrial applications of electricity clearly outlined by Watt, in Patent No. 13,755 of the year 1851.

Two, or perhaps three causes have operated to bring about this delay. The chief of these has undoubtedly been the cost of generating electricity in large quantities. Watt himself in his experimental work used primary batteries as his source of energy; but the use of these on an industrial scale of operations was, owing to their cost and inconvenience, impossible. The invention of the dynamo practically removed this obstacle to progress; still, the efficiency of the earlier designs was poor, and the cost of electrical energy remained too high to permit the development of any of these new industries, with the exception of copper refining. The attention given to the production of electricity for lighting purposes, in the period 1878-1882, and the experience gained during the remarkable development of this branch of electrical science since the latter year, have, however, led to great improvements in the designs and efficiencies of both steam-engines and dynamos; and with modern engines and machines it is possible to convert 85% of the energy of the steam into electrical energy, and to produce the latter at a cost of only 1d. per E.H.P. hour.

During the last five years great attention has also been given to the utilization of natural water-powers for industrial or other purposes; and at Niagara, Neuhausen, Mansboe, Foyers, and at many other places, electrical energy is now being produced in this way, at a cost varying from 3d. to 7d. per E.H.P. hour. The problem of a cheap supply of electrical energy may therefore be regarded as solved.

A second cause for the delay in the development of these industries is to be found in the manner in which electrical engineers, in the period 1878-1890, devoted practically the whole of their time and energies to the applications of electricity for lighting purposes. Other uses of electricity consequently did not receive from professional electricians the attention which they deserved. Chemists and Metallurgists on the other hand were too incredulous in regard to the economic success of these processes to give them a fair consideration. It seemed to them that a force which acted so slowly, and deposited metals, atom by atom, could never be used for the production of chemicals or metals by the ton. The success of the electrolytic copper refining industry, which, in the period 1869-1890, slowly grew into an industry of great importance, followed by the complete success of an electrolytic process for producing aluminium in 1888-1890, proved to both electricians and chemists that the subject was one deserving their attention, and that the economic difficulties were not so insurmountable as they had imagined. A great change in attitude towards this branch of electrical science was soon apparent, and, since 1890, the patent office literature of our own and other countries has been crowded with proposals for utilizing electricity in the chemical and metallurgical industries. The majority of these proposals, have, as might have been expected, come to nothing; but a fair proportion have survived the ordeal of an experimental trial, and have developed into processes which are now being worked on an industrial scale.

A recent estimate of the number of industrial undertakings of an electro-chemical or electro-metallurgical character, places it at one hundred and forty-two. Germany heads the list with thirty-eight, and the United States stands second with thirty-seven. Our own country follows with twenty-seven. The scale of operation varies greatly. Some of these industrial undertakings are of an experimental character, and only a few hundreds or thousands of pounds is involved. Others have been launched, however, upon a very large scale of operations; as, for example, the two companies which own the processes for treatment of the refractory Broken Hill ore. These have an aggregate capital of £1,600,000.

Eighteen distinct manufactures are carried on in these one hundred and forty-two works, ranging from that of hydrogen gas to that of pure gold. The following are a few facts relating to the early development and present magnitude of the more important of these industries.

The first manufacture to be carried on, on an industrial scale, was that of *pure copper*. In 1865, James Elkington patented an apparatus and process for refining crude copper by electricity; and in 1869 a small plant for the trial of this process, upon an industrial scale, was erected at Pembrey, in South Wales. This copper refinery has remained in operation up to the present time, although it has been much enlarged, and has passed into other hands. The new industry did not develop very rapidly, and until the year 1885 there were comparatively few of these electrolytic copper refineries in existence.

Since that date, however, there has been a very rapid growth of the industry, especially in America; and it is estimated that there are thirty-five of these refineries at the present date in operation, on the two sides of the Atlantic. America possesses sixteen of these, while our own country only possesses four. The rapid development of the industry is chiefly due to the great and growing demand that has arisen for a pure copper for electrical construction work; but the possibility of the recovery of the whole of the silver and gold contained as "impurities" in the raw copper, at a slight cost, has also helped to extend the industry.

Many copper ores contain sufficient amounts of the noble metals to repay the whole cost of refining by this process. The following figures show the development of the industry since the early days.

In 1869, the Pembrey refinery was the only one in existence, and produced about five tons per week. In 1891, Fontaine estimated the weekly production of all the refineries in Europe and America at about one hundred and eighty tons. The estimate for the present year is two thousand tons per week. One refinery alone in the United States is producing one hundred and ten tons daily.

The process used in all these refineries is essentially the same as that introduced at Pembrey in 1869. The raw copper is used as anode in a bath of copper sulphate, containing a thin sheet of pure copper as cathode. When the current is passed, solution of the anode takes place, and deposition on the cathode occurs. The impurities of the raw copper (gold, silver, antimony, etc.) remain undissolved, and collect as a brown sludge on the bottom of the depositing vat. The gold and silver are extracted from this sludge by a chemical after-treatment.

The next of these industries to develop was that of *aluminium manufacture*. Until the year 1890 this metal was chiefly produced by a chemical reduction process; and in that year our own country headed the list of countries producing aluminium, with an output of seven tons. This chemical process, however, speedily succumbed to the competition of the two electro-metallurgical processes; and since that time the whole of the aluminium production of the world has been in the hands of the two companies owning these rival methods. The patents covering these were taken out in 1886, and the processes were first launched upon an industrial scale—the one in Switzerland, and the other in the United States—in the year 1888. In 1885, the world production of aluminium was about three tons, and the price was 1s. 6d. per lb.; in 1891, the production had increased to three hundred and twenty-four tons, and the price had fallen to 2s. 1d. per lb.; whilst in 1895 a moderate estimate of the production placed it at one thousand one hundred and twenty-nine tons, and the price had undergone a further fall to 1s. 5d. per lb. There are seven works producing aluminium at the present day. Three of them are in the United States, two are in France, whilst our own country and Switzerland each possesses one. That in the last-mentioned country is the largest, and in 1895 this works produced 650 tons.

The two processes, though protected by different patents, are practically identical. Alumina is dissolved in molten cryolite, and a mixture is, in the molten condition, submitted to electrolysis. Aluminium separates as molten metal at the cathode, whilst carbonic acid gas is evolved at the anode. Since the current is used, not only for the electrolytic action, but also for maintaining the temperature of the bath, a very large expenditure of electrical energy is necessary to produce aluminium in commercial quantities; and six of the existing works use water power for generating their electricity. The industry is still rapidly growing, and not only are the existing works increasing their output, but new works are being erected at the centres of water power.

The manufacture of *chlorate of potash* is the third of these electrolytic industries in chronological order.

The first works was erected at Villers-sur-Hermes, in Switzerland, in 1889. Its success led to an extension of the industry to other centres of water-power, and there are now nine of these manufacturing existences; all with the exception of the one in our own country using water power for generating the electrical energy. The total annual production is estimated to be three thousand tons, or one-third of the total world production of chlorate. It is probable that in time the electrolytic process will entirely supplant the older chemical process. The chemical changes occurring in this manufacture are the reverse of those in the manufacture of caustic soda; but broadly stated, the process consists in the electrolysis of a concentrated solution of potassium chloride with insoluble electrodes. The solution is constantly agitated during the electrolysis, and is kept hot. Under these conditions the chlorine and caustic potash formed react and form chlorate.

The fourth electro-chemical industry was commenced in 1890, when a plant for producing *caustic potash and chlorine compounds* was set in operation at Frankfort. This manufacture has been a complete success; numerous other works have been built, and the production of caustic potash has now passed completely into the hands of the manufacturers who use this new process. Progress in the manufacture of *caustic soda* by a similar process has for various reasons been

power, and although the present year will see several large electric plants for this manufacture in operation, it is still doubtful whether their success will be marked. With the works at present there are fifteen electrolytic alkali manufactories in Europe and America. Six of these are in Germany, five are in the United States, and only two are to be found in this country. The process is that used for the chlorate of potash manufacture; but the products of the electrolysis are not allowed to react, and the temperature is as low as possible. Most of these manufactories use steam for generating the electricity since nearness to the supplies of coal, and salt is more essential than cheap power.

Electro-metallurgical industry of still more recent growth is that connected with the cyanide gold extraction process. This process was introduced into the Transvaal in 1894. In 1896, eight electrolytic gold-plating plants were at work treating fifty thousand tons of gold monthly, and it is estimated that in the present year the treatment of slimes and tailings will have risen to double this

process consists in the deposition of the gold from very dilute solutions obtained by the usual leaching process upon lead which are afterwards cupelled. The amount of electrical required is small, and the cost of working this process is stated to be less than the cost of recovering the gold by the zinc precipitation process. If this statement is correct a gradual displacement of the old process is certain to occur.

High temperatures that can be attained in the electric furnace have led to the very recent establishment of two new industries, namely, the manufacture of calcium carbide and of silicon carbide or carborundum. The first is used for the production of acetylene gas, and the second for the production of artificial diamonds. Exaggerated estimates have been formed regarding the future of the industry. The latter is used as a substitute for corundum, being much harder and therefore more effective as a grinding and polishing agent than the best Naxos emery. There are at present fifteen plants producing calcium carbide, and four producing carborundum. Only one of these nineteen is in this country. The method of manufacture is practically the same in each case, namely, the mixture of lime and silica, as pure as it can be obtained, and perfectly ground and intimately mixed with powdered coke. The mixture is then subjected to the action of an electric arc, produced by a current of sixteen hundred to two thousand amperes at eighty to one hundred volts pressure in specially designed furnaces. The temperature in these is about 3,500°C, or double that at which platinum

refining is one of the smaller successful electro-metallurgical processes. There are five of these refineries in existence; none of which, however, is situated in this country. The process used is very different from that described for copper, the chief difference being the use of a nitrate solution for the sulphate solution in the electrolytic cells.

Processes for treating by electrolytic methods, the famous Cornish ores, have already received brief notice.

The ores contain lead, zinc, and silver, and these processes are said to be the recovery of all three constituents.

Plants in New South Wales are not yet in operation, but the ease with which the capital of £1,600,000 has been privately raised speaks for the future success of this industry. There are in addition two electrolytic processes for the extraction of zinc from its ores at a small scale, one at Duisberg in Germany and the other at Cornwall.

Other industries, already noticed, account for one hundred and one hundred and forty-two industrial undertakings mentioned in the commencement of this article. Limits of space forbid any consideration of the processes and manufactures represented by the remaining thirty-three.

If products is all the information that can be given concerning these are as follows: Hydrogen, ozone, potassium, sodium, cyanide, potassium per-oxide, disinfectants, galvanized iron, white chemical chemicals, and copper tubes.

Most of the manufactures here enumerated are at present in the early stages of their development, the indications with respect to them point to a future growth that will result in industries of importance to those first mentioned.

Brief review of the early beginnings and present position of the chemical and electro-metallurgical industries shows that whilst in the year 1890 the advance was slow, the development since that time has been most noteworthy and rapid. This development will not only continue; for not only will the existing industries expand, but new ones may be expected to arise. Owing to the lack of large developed water-powers in this country, our position with respect to these industries is not so satisfactory as we might desire, and it is likely to improve; and it will be in countries more favoured in this respect that the greatest development of these electro-chemical and electro-metallurgical industries will be seen.

NOTES ON PETRIFITE.

FOLLOWING up the remarks which appeared in the *Journal* (No. 507, p. 115), we recently attended a demonstration of the applications and capabilities of this new cement-like agglomerant.

Its binding powers are certainly remarkable, while the method of using is perfectly simple. It is not easy to refer to all the uses that suggest themselves, but the following additional information will enable our readers to judge for themselves as to the applicability of this petrifier. We are inclined to think that for once in a way the industrial world have at their disposal a really good and all-round square and useful substitute for cement. From responsible trials that have been conducted in London it has been found that sawdust and sand bound together with Petrifite, and used for paving purposes, wear better than blue Yorkshire paving stone and far better than Portland stone. Further comparative tests have shown that whereas at three days, briquettes made with Guernsey sand and Portland cement stood no strain, those made with Petrifite were at that age over 30 per cent. stronger than the Portland cement briquettes at 20 days, and at 20 days the Petrifite briquettes were over double the strength of those made with Portland cement. The comparative tests with granite chippings showed that whereas at three and ten days the Portland cement briquette stood no strain, at three days old the Petrifite briquette was over twice as strong as the Portland briquette at 20 days, and at 20 days the Petrifite briquette was over four times the strength of the Portland briquette. Further, that a briquette consisting of three parts of quarter-inch granite chippings with one of Petrifite by weight, at 10 days stood the great strain of 1,040 lbs. per square inch.

The following comparisons of strength, based on actual tests, are also interesting:—Common garden earth (which no other cement will bind) and Petrifite makes in 10 days a hard solid stone with less porosity, and standing four times the crushing strain of good Portland cement and clean pit sand of the same proportions and age. Mixed with three times its weight of sea sand it gives a stone which when only 30 days old, is stronger than natural Portland stone, and over five times as strong as Bath stone, and can be used for buildings, as it does not "sweat." Three parts of slate dust with one of Petrifite, after 10 days are stronger than Purbeck marble.

Among the formula for brick-making the following may be noted:—

Three parts of sea sand, slate dust, marble dust or china clay waste with 1 of Petrifite are about equal in crushing strength to best blue bricks.

Nineteen parts of sea sand, or 9 of china clay waste, or 8 of garden earth and ballast or 3 of destructor waste, with 1 of Petrifite, are about equal to ordinary building bricks.

Twenty-five parts of sea sand, or 19 of china clay waste, or 12 of garden earth and ballast, or 4 of destructor waste, or 3 of road mud, or 1½ sawdust, with 1 of Petrifite, are about equal to stock bricks. Bricks made from destructor refuse are, when only 10 days old, superior to ordinary bricks, and more than twice as strong as Portland cement and clean pit sand of the same proportions and age.

Stone and bricks so made are not affected by cold or heat, very severe trials having been made at the Federal Institute for testing building materials at Zurich.

As it adheres to iron it is very useful for mending leaky pipes; canvas covered with Petrifite makes a tight joint. A boat has been made from the same materials, and done good service as a tender on the Thames.

As instances of a few of the varied applications of this compound, we have seen slabs and bricks made in varying proportions with road sweepings, iron oxide, town's waste, chopped straw, or sawdust. Powdered chalk produces a block very similar to soap stone. Ordinary newspapers, moistened with a thin Petrifite "slip," have proved an efficient fire-proof and economical boiler covering. Also 3-ply canvas, wound round a mandril and steeped in Petrifite mixed with water, makes an excellent hydraulic pipe. The porosity of such preparations is next to nothing, and can scarcely be measured in a mixture of Petrifite and marble dust. It is being used also as a carrier for pigments for scene painting, giving good results and fire-proofing the canvas at the same time. It can be mixed with a certain amount of oil without injuring its properties, though in the ordinary way it is simply mixed with water in much the same way as plaster of Paris. The address of Petrifite, Ltd., is Brook House, 10, Wallbrook, E.C.

SINGULAR FIRE IN A COLD STORE.—A fire has occurred, of all curious places, in the ice-cold storage vaults of a New York firm. Whilst the firemen were at work a vessel containing ammonia used in the refrigeration exploded, instantly spreading its fumes in all directions. For several hours the firemen fought the flames in the cellars, working in a freezing atmosphere amidst stifling smoke and ammonia vapour. Ultimately, however, the fire was subdued. One fireman lost his life, while two were taken to the hospital, suffering terribly from the effects of the ammonia and the intense cold.

Official Memoranda.

(From the Board of Trade Journal.)

THE GERMAN LEATHER INDUSTRY.

In a despatch to the Foreign Office, Viscount Gough, Her Majesty's Charge d'Affaires at Berlin, forwards a précis, by the Commercial Attaché of the Embassy, of a book lately published, called the "Leder-Herold, 1897," which is practically a report on the whole leather industry of Germany. This is one of the most important of German industries, and may be said to occupy the third to fourth place, if all its branches are taken into account, and it is one that is daily expanding in every direction. According to the census of 14th July, 1895, the number of persons engaged in it was 596,717, of whom 433,586 were occupied in the boot and shoe trade, 74,839 in making saddlery, harness, &c., 47,480 in tanning, and 16,278 in the glove trade. The commerce in hides and skins is immense, and is one of the leading branches of trade, as is also that of tanning materials. In 1895 the value of the former imported was £7,297,700., and that of the exportation amounted to £2,579,050. Besides this, £1,549,500. worth of tanning materials were brought into the country. The exports of worked-up hides, leather, and "Wachstuch" (wax-cloth) were valued at £4,925,450., and those of leather, harness, and pocket articles at £4,914,350.

In consequence of the immense increase of the leather manufacture in the Hamburg neighbourhood, that town has become the emporium of the Continent for hides and tanning materials, and has quite eclipsed Havre and Antwerp in that respect.

There seems to be no doubt that this industry has a still greater future before it. It is as yet in a partly transition state from one of primitive and hand methods to one of mechanical and chemically-aided production on a large scale. The consumption of leather wares is greatly on the increase. At the present time it amounts to about £20,000,000., to which must be added the exportation of leather and manufactures thereof, which in 1895 were valued at £10,000,000. The German army consumes alone an immense quantity of leather goods. 500,000 pairs of boots are yearly supplied to them; and, further, there are large orders for re-sooling. The manufacture of machine-made boots and shoes has advanced greatly, and is now a large independent branch of the whole.

This leather industry requires large capital, much skilled labour, and technical knowledge. The scientific researches in connection with its improved processes are many and important.

As regards leather and its manufactures, Germany has now become fairly independent of foreign supplies, and will daily become more so. The rise of this industry suffered from foreign competition, and the tanning trade could not formerly satisfactorily compete with North American manufacturers of leather, who imported hides tanned with hemlock—a very cheap process. It was this circumstance that led to a great agitation on the part of leather manufacturers and tanners in Germany for heavy protective duties. This demand was accorded them by the new tariff of 19th July, 1879, by which the import duties were immensely raised. Prior to 1878 the quantity of raw hides imported had increased from 400,000 centners to 800,000 in that year. Since then the leather industry has grown and flourished, and the greatest care has been taken to make use of the newest methods of production, which have all been carefully experimented with. Particular attention has been paid to every detail in manufacture for the perfecting and cheapening of processes. The use of "Quebracho" wood as a tanning medium has caused a revolution in production, and, particularly in the neighbourhood of Hamburg, many special works for its use have been erected.

The technical side of leather production has had a great influence, from the attention bestowed upon it. Among the newest creations of the tanners' guilds are the establishment of a special trade school and technical institute. In Freiberg, in 1889, a tanning school was founded by the Saxon leather industry. A chemical technical laboratory was also started in 1881. Both these institutions have brought the production of leather to a wonderful pitch of scientific perfection. In many other special branches of this trade there are schools of the same nature—as, for instance, for sewing gloves, making saddlery, &c.

The year 1895 was in two respects unsatisfactory for the leather industry; firstly, because of the unexpected rise in price of leather and hides; and, secondly, from the uncertainty as to the result of the proposal to place a duty on the importation of "Quebracho" wood and other foreign tanning materials, which was supported in the Reichstag by a powerful party interested in improving the position of the tanning materials of Germany. The Bundesrath, however, rejected the resolution of the Reichstag. It has since been proved that the duty-free admission of "Quebracho" is necessary to the maintenance of that country's competition in the world's markets, and that any duty making leather manufacture dearer would do much harm. It was also undesirable, because that wood is becoming scarcer, consequently German tans will in time acquire, naturally, a better price.

An attempt has been made last year to improve the statistics relating to leather industries, to obtain a reduction of railway freights for hides (it is believed they came into force on 1st April 1897), and still further apply scientific knowledge to all processes. Dr. Gürtel, the Botanical Museum in Berlin, has taken steps to obtain a collection of the world's tanning materials, which will be exhibited with details to production, use, and price.

The tanning school in Freiberg, Saxony, which was opened on 1st, 1889, is the only one of its kind in Germany, and was then the one in the world. Since that date however, similar schools have been established in Vienna, Hungary, and North America, and Württemberg and Rotterdam have both planned such schools.

The object of this Saxon tanning school is to teach the principal technical processes, all improved methods and technique, and the methods of dealing with raw material, etc. The special points of instruction are as follow:—

1. Tanning and preparation of hides, with practical examples;
2. Scientific lectures on tanning;
3. General chemistry;
4. Practical chemistry in tanning trade;
5. Chemical experiments;
6. Tanning methods, "tawing" ("weissgerberei") by fat and mineral acids;
7. Colouring of leather;
8. Physics;
9. Microscopic demonstration;
10. Knowledge of machines;
11. Drawing;
12. Bookkeeping;
13. Trade accounts;
14. Trade apprenticeship;
15. German language—correspondence and business letters;
16. First help in accidents.

The course lasts one year. The fees for Germans are £10., and for foreigners £17. 10s.; they are payable in two instalments. A further £1. 5s. is charged for use of the laboratory and for tanning apprenticeship.

Rooms with or without board can be had; and at a cost of £25. to £45. a year lodging and food can be had for the year. A prospectus is sent on application.

For theoretical instruction there are collections available to study which cover all branches of the trade. There is a library of volumes, in which are to be found the chief publications on this industry in all languages.

From 1889 to 1895, 173 Germans and 133 foreigners attended school. (In the list of students for last year not one English figure.)

The *Leder-Herold* for 1897 also treats of the course of study in the chemical technical laboratory of the Society of German Tanners in Berlin, and was the first of its kind in Germany. A list is also given of the technical schools for boot and shoe makers, saddlers, harness makers, and paperhangers, and for sewing of gloves.

In addition, there are statistics most valuable to the leather trade dealing with all branches for many years back, and an enumeration of the duties of the principal countries on leather and leather manufactures—including Germany, Belgium, France, Greece, Italy, Norway, Austria-Hungary, Roumania, Russia, Sweden, Switzerland, and the United States.

THE MINERAL RESOURCES OF WYOMING.

Deposits of soda covering vast tracts of country, formed by igneous action, containing a quantity of soda in solution, exist in the State of Wyoming. Under the influence of an excessively dry atmosphere the soda evaporates, and the soda is deposited in the form of crystals, giving lakes the appearance of immense fields of ice. There are several of these lakes, some of them having an area of 197 acres, and a depth from 3 to 4 yards. The Belgian Consul at Denver, in a recent report to his Government, states that the preparation of this soda for market comes to 16s. per ton, the cost of carriage from Wyoming to Chicago is 24s. per ton, and the soda ash is worth £4. per ton at New York. Several manufactories are already at work near these lakes, and others are spoken of. These natural deposits probably contain many million tons. It may be noted that 108,169 tons of soda are annually employed in the making of sheet glass in the United States.

Another mineral found in great abundance in the mountainous regions of Wyoming is iron ore.

Exploration of the deposits of red hematite of a superior quality has proved that they are practically inexhaustible. These deposits cover a surface of 25 square miles, and experts declare that they contain 20 million tons of ore. The most remarkable in working order are those of Seminoe, which extend, as far as can be reckoned on, about 10 square miles. The bottom of these deposits has not yet been reached, and they are capable of supplying the entire world with pig iron for centuries.

The veins in the deposits of Hartville (the red hematite was obtained the first prize at the exhibition of Chicago) have a width from 16 to 82 yards, a maximum extent of rather over three miles, a depth reached so far of 43 yards. This ore furnishes Bessemer quality of quite the best quality. Limestone and coal being found in abundance near these mines, the furnaces of the neighbourhood are in a flourishing condition, and a siderurgical establishment is projected.

sper and Lander, in a barren region in the centre of the State, these deposits of petroleum, the excellent quality of which is known: its purity is such that the railway companies use it in a. Several companies have already undertaken the sinking of a number of oil wells, and the results obtained appear to show petroleum industry is likely to develop to immense proportions. Of various kinds is found in abundance in Wyoming: limestone, red sandstone, marble, onyx; but the want of transport stands in the way of the working of these rich

occupies an important place among the mineral resources of the State and is found of excellent quality throughout. There is also a fine coal which is worked into coke of good value, and finds a ready sale on the market.

Oil mines are worked on a large scale; during 1895 the output was 2,000 tons, of a value of £637,700.

Large quantities of nickel and asbestos have also been recently discovered, and asphalt, kaolin, and mica exist in several deposits.

Several industries which have existed for many years in the East are beginning to paralyse the output of the West. The markets of the West for their products, granting them a preference and selling them at impossible prices, another method employed being the complete control of western products in order to keep down their prices.

TARIFF CHANGES.

From time to time many alterations in the Customs regulations are made, which it is well for those trading in chemicals, oils, paints, and materials to be acquainted with. The following are some of the recent changes of interest to the foregoing:—

DUTIES.—The following is the present law of Bulgaria concerning duties on salt:—Native sea salt is charged with an excise of 1 franc per 100 kilograms. Sea salt and rock salt of foreign origin are charged with a customs duty of 9 francs on entering the principality. Transporting salt from the salt works, or the deposits near the coast having first paid the above duty, will pay in addition a duty of 1 franc to double duty.

SULPHUR imported into the U.S.A., after having been refined and not purified, is dutiable at 50 per cent. *ad valorem*. In addition to the present duty on soap imported into the U.S.A. an additional levy of ½ copper piastre per oke has been

PETROLEUM duties at the same place now stand thus:—Petroleum in cases exceeding 25 okes each net weight, the case 6¼ copper piastre.

Petroleum in cases exceeding 25 okes each, net weight, or in kegs, 1 copper piastre.

ALUMINUM of aluminium, zinc, iron, manganese, chrome, lead, and tin, not hitherto included in the Customs tariff of Venezuela, are, in force, added to the third class of the said tariff.

Reports of Companies.

BRUNNER, MOND, AND CO., LTD.

Report of the directors of Brunner, Mond, and Co., Limited, to be submitted to the shareholders at the thirty-second general meeting of the company, to be held at the Law Rooms, 14, Cook-street, Liverpool, on Tuesday, 25th inst. There is a balance to the credit of profit and loss account in the year of the nine months ended on the 31st March, 1897, of £15s. 9d., which, with the amount of £95,943. 14s. 9d. carried forward from June half-year, 1896, makes a total of £10s. 6d. The directors propose to deal with the above as follows:—Interim half-yearly dividend on the preference of 7 per cent. per annum, paid on the 27th February, 1897, 16s. 8d.; dividend to be now paid on the preference capital of 10s. per annum, £10,289. 5s.; interim half-yearly dividend on ordinary capital at 20s. per fully-paid share, and 7s. per partly-paid, paid on the 27th of February, 1897, £95,081. 1s.; to be now paid on the ordinary capital at 25s. per fully-paid share, making 30 per cent. per annum for the nine months, £1s. 3d.; amount to be written off patents account, £500.; to be carried forward, £84,732. 6s. 7d. This makes a total of £10s. 6d. Dividend warrants will be posted on Saturday, 1st of June, 1897. The directors who retire by rotation are Mr. Dr. Hewitt, Mr. Jarmay, and Mr. Milner, all of whom are recommended for re-election. The directors also recommend the election of the following gentlemen as additional members of the board of directors:—Mr. Fernand van der Straeten Solvay and Cie, Brussels; Mr. Hugh Bell, J.P., D.L., of Glasgow, Limited, Middlesbrough; and Mr. Robert Ludwig I.A., son of Dr. Mond; and resolutions to this effect will be put to the meeting.

NOBEL'S DYNAMITE TRUST CO., LTD.

THE report by the directors of this company, for the financial year ended April 30 last, states that the profit and loss account for the twelve months shows that the net profit for the year amounts to £220,312. 12s. 8d., and, adding the sum of £14,511. 18s. 11d. brought forward from last account, there is a total available profit of £234,824. 11s. 7d. The directors recommend that £216,190. 16s. be applied in payment of a dividend at the rate of 12 per cent. free of income-tax, carrying forward £18,633. 15s. 7d. to next account. The business in the past year has been well maintained throughout, except in Germany, where the unsatisfactory state of the explosives trade reported last year has been further accentuated. Ample provision has been made in respect of depreciation; all outlays for maintenance and repairs have been met out of revenue, and the reserves have again been materially strengthened. Several of the subsidiary companies have acquired a holding of shares which give you an interest in some of the largest ammunition and small-arms factories on the Continent. The directors regret to say that the past year has been marked by several serious accidents, unfortunately attended with loss of life, which have occurred at the factories in Scotland and Germany. In order to further improve the position of your company in Australasia, arrangements have been made by which the Australian Explosives and Chemical Company, Limited, will henceforth be placed in the position of one of your subsidiary companies. It is with profound regret that the directors have to inform you of the death of your hon. president (Mr. Alfred Nobel, the inventor of dynamite, and of nearly all the explosives which constitute your manufacture and trade). Mr. Hugh Beckett, Mr. J. N. Heidemann, and Mr. Thomas Johnston are the directors retiring at the forthcoming general meeting, and, being eligible, are cordially recommended for re-election. Mr. Richard Harrold, the chairman of the Australian Explosives and Chemical Company, Limited, will at the same time be proposed for election as a director, to fill one of the vacancies on the board. The auditors (Messrs. Cooper Brothers and Co.) likewise offer themselves for re-election. The dividend warrants in respect of registered shares will be posted after the meeting, and will be payable on and after May 28, 1897.

DIVIDEND.

THE FULLERS EARTH UNION (LIMITED).—The directors recommend a dividend of 2 per cent. for the year ended March 31, carrying forward a balance of £1,308., as against 1½ per cent. and a balance of £1,322. carried forward on March 31, 1896.

Trade Notes

PERSONAL.—The vacancy in the post of gas engineer to the Salford Corporation, caused by the resignation of Mr. S. Y. Shoubridge, has been filled by the appointment of Mr. W. W. Woodward, for some time deputy gas engineer. Mr. Woodward has been with the Corporation thirteen years. There were twenty applicants for the position.

IT WAS CARBON MONOXIDE.—Dr. Haldane has analysed the specimens of gas taken from Snaefell mine, where the disaster which resulted in the death of twenty miners occurred last week, and he has found that the gas was carbon monoxide. This confirms the opinion of Dr. Miller given at the inquest last Wednesday (vide also C.T.J. 215, p. 330).

THE ADULTERATION OF SUMACH.—A letter from the Chief Secretary of the Government of Cyprus was submitted to the Manchester Chamber of Commerce at their last meeting, enclosing copies of a notice issued by the Cyprus Director of Agriculture drawing attention to the "large quantities" of adulterated sumach which, it is alleged, are consumed by English manufacturers. It is added that the adulteration can only be detected by microscopic examination, and manufacturers are recommended to obtain the sumach they require in the shape of leaves, of which Cyprus produces large quantities, and can supply much more should the demand for them increase.—The correspondence was referred to the Chemical Sectional Committee.

THE COAL OUTPUT.—Summaries of statistics relating to the mines and quarries in the United Kingdom and the Isle of Man have been issued in Blue-book form. During 1896 the total number of persons employed at all the mines of the United Kingdom was 725,803, a decrease of 7,854 compared with the previous year. The total output at the coal mines was 208,503,868 tons, of which 195,351,951 tons was coal. There were 849 separate fatal accidents causing 1,025 deaths. Compared with 1895 there is a decrease of 19 in the number of accidents and a decrease of 17 in the number of deaths. In the Manchester district, where 244 mines are worked, there were 30,939 persons employed underground and 7,548 above ground, making a total of 38,487. No less than 10,341,990 tons of mineral was raised at these mines. In the Liverpool district, where 54,194 persons were employed, the output was 15,412,470 tons.

THE "STAR" AND THE PETROLEUM QUESTION.—It is with pleasure that we congratulate the London *Star* on the appearance of the first of its series of articles dealing with this important question. The view taken is the only one supported by science, commonsense, and justice, and the whole-heartedness which characterises their articles is refreshing to those who have fought for right against such odds. It will have the good wishes of every lover of freedom and honesty, and is doing much to remove the stigma cast by Americans on the English *dai'y* press because of their incomprehensible silence upon the matter. That dishonourable silence is broken now, however, and by a blast that will ring unpleasantly in the ears of the select few forming the New York Oil Trust. Murder will out, but when will the sentence be passed?

MAKING CARBORUNDUM IN GERMANY.—Mr. E. G. Acheson, president of the Carborundum Company of Niagara Falls, has gone to Germany to establish a plant for the manufacture of carborundum in that country. It is expected that the plant in Germany will be about the size of the plant now in operation at Niagara Falls, which utilises at present 1,000 h.p. The idea of erecting the plant in Germany is to protect the German patents, and Mr. Acheson could not say whether they would simply make the carborundum, or whether they would also manufacture wheels and the various other articles made from the abrasive, but he expressed the belief that they would sell the carborundum to other parties who would manufacture the several articles. The law in England is not so stringent as to the erection of factories, and the process of manufacture in order to protect the patents granted by that country, and it is to supply the English market, as well as the increasing American demand, that the Niagara Falls factory is to be enlarged.

CLOSE OF THE PETROLEUM INQUIRY.—Although the Petroleum Committee have finished taking evidence, it is still uncertain whether they will be able to state the result of their inquiry this session. They have adjourned until after Whitsuntide, in order that Sir Vivian Majendie may have time to prepare a *precis* of the evidence as the basis for a draft report; but, in view of the varied and important issues that have been raised a considerable period will be needed for formulaing and considering the conclusions and recommendations, and in the circumstances it is quite within the bounds of possibility that the committee may have to be reappointed next year to bring their labours to a conclusion. The principal difference of opinion, when the committee come to consider their report, will probably be as to the suggested raising of the flashing point of petroleum. Other important questions to be considered refer to the manufacture of lamps and the regulations concerning storage; but these are not expected to arouse serious controversy.

EXPLOSIVES IN MINES.—On Tuesday a deputation, representing practically all the employers and the 120,000 men connected with the South Wales and Monmouthshire coalfield, waited in private upon the Home Secretary (Sir Matthew White Ridley), at the Home Office, with reference to the order recently issued from the Home Office, under the Coal Mines Regulation Act of 1896, regulating the use of explosives in mines. Mr. W. Abrahams, M.P., who introduced the deputation, which was accompanied by Sir J. T. Dillwyn Llewellyn, Bart, M.P., Sir J. J. Jenkins, M.P., and Mr. D. Randell, M.P., said the conditions of mining in South Wales were of so varying a character that if the order were enforced in all collieries it would not only be impracticable but detrimental to the interests of both employers and employed. They therefore asked that the order should be considerably modified. The Home Secretary, who appeared to be favourably impressed with the views of the deputation, in reply, promised to give full consideration to the subject. The deputation then thanked the right hon. gentleman for his courtesy, and withdrew.

Market Reports.

TAR AND AMMONIA PRODUCTS.

The tar products market generally is weak. Benzols are very low, having fallen heavily, with 90's moving freely at 1s. 6d., while 50/90's range from 1s. 10d. to 1s. 11d. Carbolic acids are also easier, 60% crude being quoted 2s. 5d., a fall of twopence; 40% crystals 8d., and liquid 1s. 1d. Naphthas are quiet, solvent remaining nominally at 1s. 8d., and crude 11d. Anthracene is in a bad way, 30% A now figuring at 6d., and B at 5d. These values, however, are more or less nominal. Creosote steady. Pitch is weaker again, and buyers are shy, nearest value being 20s. to 22s. f.o.b., East Coast.

Sulphate of ammonia continues firm in price, especially on the West Coast, where the demand has been heaviest lately both as regards home and export dealings. Malers generally are firm at the following quotations:—Beckton £7. 7s. 6d., London outside makes £7. 11s. 3d., Liverpool £7. 15s., Hull £7. 11s. 3d., and Leith £7. 11s. 3d. to £7. 12s. 6d. all prompt. Nitrate of soda easier.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade business as a whole continues fairly quiet, values are steady all round. For export, business is still active, view of co-operation between British and foreign makers then probability of much needed improvement in the export prices. For home trade the quotation is nominally unchanged, at £3. 10s. 6d. f.o.r. Caustic soda is firm at last week's prices, viz.: Liverpool, 77%, £9. 7s. 4d.; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d. 2s. 6d., nett, 10-ton lots. For bleaching powder there is inquiry for export, and price firm at £6. 12s. 6d. to £6. 15s. 6d. f.o.r., makers' works, £6. 10s. per ton. Saltcake in position, at 19s. to 20s. per ton, in bulk, f.o.r. Soda cry bicarbonate steady and unchanged in price. Chloride of potash 4½d., and soda 5d., but with a slightly tendency for future delivery. Sulphur firm in price in good demand. Sulphate of copper, £16. 5s. f.o.b., at Potash, caustic and carbonate, are in good request, and price Yellow prussiate, 5d. to 5½d. Acetate of lime, brown, firm at £5. 2s. 6d., c.i.f.; grey, £7. 15s. to £8. per ton. White sugar lower. Other grades unchanged. Acetate of soda lower, excess of supply, at £12. 15s. c.i.f. Arsenic, £23. per ton. Oil and salt have a lower tendency. Nitrate of soda quiet, and doing at 7s. 9d. to 7s. 10½d., f.o.r. Ammonia salts, generally weaker. Carbolic acids lower. In miscellaneous chemicals as yet no indications of improvement, and trade continues reported quiet from all manufacturing districts.

REPORT ON MANURE MATERIAL.

As the end of the season approaches demand is slackening prompt and early delivery, but there is more disposition to business in the forward position. There are sellers of 75/80% phosphate rock at 5½d. per unit, in cargoes, c.f. and i., to export, and this price would also be taken for similar grade rock. For 58/63% Algerian, 5d. is required, and this price quoted for South Carolina river rock, but without finding buyers. East Indian bone meal, ordinary quality, on spot, £3. 12s. 6d. would be accepted ex store, but for fine, £3. 15s. per ton is. To arrive, however, there are sellers at £3. 8s. 9d. per ton, Bombay bone meal. Nitrate of soda is quiet at 7s. 9d. per ordinary quality, and 7s. 10½d. for fine. There is nothing reported in miscellaneous material.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron firm. Scotch warrants 45s. 5½d., Middlesbrough 40s. 4d. cash, and hematite 48s. 6d. steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £49. 10s. cash, and £49. 12s. 6d. to £49. 17s. 6d. three months; Straits closed at £61. 7s. 6d. to £61. 17s. 6d. three months; Australia 15s. English ingots, £65. 5s. Lead steady: Spanish 18s. 9d. to £12.; English, £12. 2s. 6d. Silesian spelter, £17. 7s. 6d. Nickel, 1s. 2½d. Antimony, £30. 10s. Quicksilver: First hands, £7. 7s. 6d.; second hands, £7. 7s. 6d. shares steady: Cape, 2½ to 2½; Copiapo, 2½ to 2½; Tharsis, 5¼ to 6.

HULL PAINT, OIL, AND COLOUR REPORT.

OILS.—The market prices current are again normal. Linseed oil remains practically unchanged. The principal imports for the year as against the same time a year ago are: 243,018 quarters, against 235,072 quarters; rapeseed quarters, against 35,822 quarters; cottonseed, 93,1 against 75,116 tons; oilcake, 4,113 tons, against 5,9 olive oil, 2,145 tons, against 2,836 tons. Linseed oil is easier tendency is downward: spot, 13s. 4½d.; forward June-August, 13s. 10½d., sellers. Crude, ditto, spot, is quoted 11s. 9d. Filtered, refined, is £1. per ton extra; barrels £1. 10s. and casks £1. 10s. Turpentine, 21s. 6d. per cwt. Castor oil, pressed by per lb.; first pressure, French, 3½d. per lb.; Calcutta, 3¼d. per lb. Candia and Malaga olive oils, £31. per ton makes cheaper. Cod oils, £16. to £18. per ton. Olei £16. to £18. per ton. Italian olive soaps, £16. to £18. c.i.f. Hull. Bone fat is quoted £16. per ton.

LES.—The mills here are very quiet, many running short time. Cakes quiet: 95% pure, £5. 10s. to £5. 12s. 6d. per ton; 85% pure, £5. 7s. 6d. per ton. Russians, £5. 17s. 6d. to £6. 2s. 6d. n. Cotton cakes very quiet: best makes £3. 15s. to £3. 3d.; seconds, £3. 11s. 3d. to £3. 12s. 6d. per ton. Rape unaltered.

NTS.—Makers continue well employed. Prices are: White and is unchanged, also oxide of zinc. Dry mineral colours £3. to £8. ; ordinary colours in oil from £9. per ton; ready mixed paints £23. per ton. Paint remover, 25s. per cwt. Imperial black, £5. 10s. per ton; oak varnish, from 5s. 6d. per gallon.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

S.—Palm oil is quiet, and fairly steady in price, but there is no doing. Olive is experiencing a limited demand, without any on in prices up to now. Linseed continues steady, but quiet, 6d. to 16s. 6d. per cwt., for Liverpool makes, in export casks, ng to quality. Cottonseed is unchanged at 15s. 3d. to 16s. for oil refined, there being no improvement in the demand. Castor ing well held, but there has been a falling off in the demand. essure French is the turn easier at 3½d.; good seconds Cal- mains at 3¼d., and Madras at 3¼d. per lb. Tallow is steady, es are unaltered. Resin is beginning to fall flat. There is but demand, the market closing quiet, without change in prices. s of spirits of turpentine are firm, and evidently contented for the with the moderate spot demand which exists at 21s. 3d. per cwt. um is very dull and business limited; holders still quote 5¼d. or American, and 5½d. to 5¾d. per gallon for Russian refined OURS.—Prices are steady, and practically without change.: Oxfordshire, common, £10., medium, £12., best, £15, hire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, econds, 50s., and common, 18s.; Irish, Devonshire, 40s. to rench, J.C., 65s. UMBER: 40s. to 45s. White lead, £16. ad unchanged. Venetian red, £6. to £10. Cobalt: Pre- oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

icals are quiet though the demand is fairly steady. Soda are quoted at £2. 12s. 6d. per ton, gross weight, locally. 76/77%, £9.; and 70%, £7. 10s. per ton Sulphur £5. per shipments are fairly good. thing powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per t; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. a, nett; recovered sulphur, 2 cwt. bags, £5. per ton, soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, 6d. per ton, nett; white alkali, 48%, £5. per ton, nett, %, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett. phite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. 7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, o., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. a, nett; soda crystals, casks, £2. 12s. 6d. per ton, eight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; e of potash, 5d. per lb., less 6%; pearl hardening, r ton, nett; pure white sulphate of alumina, £3. 17s. 6d., nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. nett; sulphide of barium, crystals, £4. 15s. per ton, nett; te of alumina, £30. per ton, nett; aluminate of soda, £30. , nett.

T.—There is no change in the price of South Durham salt, which at 9s. per ton f.o.b. Tees.

LS.—Trade is perhaps a shade quieter, though there is still a demand for steam coals and most of the steam coal collieries are in rk. Coke is firm and exports continue to be heavy. Best mbrian steam, 8s. 6d. to 8s. 9d. per ton; second qualities, to 7s. 9d. per ton; small steam, 3s. 9d. to 4s. per ton. old coals 10s. to 11s. per ton. Gas coals, 7s. 3d. to 8s. per luke very firm at 15s. 6d. to 16s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

he whole the tendency in general chemicals is to the fall, about y examples on the other side being the higher strengths of caustic hich are in demand and therefore very firm for time, and salt- hich seems to indicate some small rise. In addition to a recent mriate of ammonia (salammoniac) now £2. lower in both first ond. There is a further declension in borax, and a similar ent is observable in sulphate of copper. Nitrate of soda also is

cheaper. The market as a whole is very quiet. This likewise applies to sulphate of ammonia which stands very inactive at about £7. 12s. 6d. f.o.b. Leith for prompt. There are still no forward buyers, at least on any terms the makers will look at. Mineral oils and solid paraffins all unchanged and for the most part very idle—lubricants excepted.

Chief prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, soda ash, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, 48/52°, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 5s. 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, 35/37°, £6. 10s. nett, Tyne; saltcake, 19s. to 20s.; borax, English, refined, £16. 10s. and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash, 4d. less 5%, any port; nitrate of soda, 7s. 10½d. to 8s. 1½d.; sulphate of ammonia, £7. 12s. 6d. prompt, f.o.b. Leith; salammoniac, first and second white, £33 and £31. nett, any port; sulphate of copper, £16. 5s. less 5%, Liverpool; paraffin scale, hard, 1½d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 6¼d. to 6½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 9,536 bags cane unrefined, 3,000 bags beet unrefined, and 2,550 bags beet refined.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

J. C. FLACK, JAMES FLACK, and JOSEPH FLACK, Henson-street, Old-street, E.C., oil and colour merchants, trading as Flack and Sons.

A. W. HOLT, R. W. EDGE, and W. H. HOWARD, salt packers and merchants, under the style of the Cheshire Salt Co., and blacking manufacturers, under the style of Bell and Co., Bolton.

J. DOCKER and J. GEE, bleachers and dyers, Droylsden and Manchester, under the style of Docker and Gee.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

MAYO, T. C. (trading as Comerford, Mayo, and Co.), New Oscott and Birmingham, varnish and oil merchant.

New Companies.

Carlwright, Ltd—CAPITAL £10,000, in £5. shares, of which 1,000 are 5 per cent. cumulative preference. This company has been formed to acquire the business of oil and colourmen and paint and varnish manufacturers. Registered office: 15, King-street, Oldham, Lancashire.

Henry Clark and Sons, Ltd.—CAPITAL £8,000., in shares of £10. each. This company has been formed to acquire the business of oil refiners and anti-fouling paint makers, now carried on as Henry Clark and Sons and the Milwall Oil Co. at Milwall, London. E. Registered office: 49, Eastcheap, E.C. The subscribers to the memorandum of association are:—J. L. Fuller, 28, Bush-lane, E.C., electric engineer; H. Clark, jun., 15, Breakspear-road, St. John's, S.E., oil refiner; E. V. Clark, 34, St. Aubyn's, Hove, chemist; H. Clark, sen., 34, St. Aubyn's, Hove, gentleman; Mrs. K. M. Clark, 15, Breakspear-road, St. John's, S.E.; W. Pell, 51, High-street, Stoke Newington, clerk; C. Denton, 30, Eleanor-road, West Ham Park, E., traveller.

Joseph Watson and Sons, Ltd.—CAPITAL £500,000 in shares of £5, 60,000 being 5 per cent. cumulative preference. This company has been formed to acquire the business now carried on as soap, candle, and glue manufacturers, tallow refiners, glycerine refiners, felimongers and tanners, &c. Registered office: Whitehall-road, Leeds. The subscribers to the memorandum of association are:—C. Watson, Burton Grange, Headingley, Leeds, soap manufacturer; G. Watson, Donisthorpe House, Moortown, Leeds, soap manufacturer; J. Watson, Donisthorpe House, Moortown, Leeds, soap manufacturer; H. J. Page, Elmville, Roundhay-road, Leeds, hide broker; C. Hagen,

Peacock's Ovaline Soap Co., Ltd.—CAPITAL £6,000., in £1. shares. This company has been formed to manufacture and deal in soap and other toilet articles. The subscribers to the memorandum of association are:—T. B. Harper, 15, Greencroft Gardens, N.W., solicitor; J. F. Freegard, Ravensbourne-park, Catford Bridge, gentleman; R. M. Albery, 8, Sussex-place, Slough, secretary; C. F. Ince, 1, Church-court, Old Jewry, printer; F. D. Leslie, 74, Coleman-street, E.C., accountant; G. F. O'Connell, 54, St. Charles-square, Notting Hill, clerk; H. C. Digby, 60, Lennard-road, Penge, manager.

38 cks.	J. L. Lyon & Co.
24	Burrell & Co.
26 brls.	Leach & Co.
50 pks.	Henderson, Craig, & Co.
20	Andersen, Becker, & Co.
50	Tough & Henderson
18	E. J. & W. Goldsmith
54	"
10 bls.	J. Owen
16 pks.	C. S. Lovell
27	Tough & Henderson
20	E. Cornell
50	Cox Bros
15	London Paper Mills
10	Johnsen & Jørgensen
10	Hummel & Co.
20	J. Sharp
10	Phillips & Graves
18 cks.	J. Owen
10	Burrell & Co.
10 brls.	M. Ashby, Ltd.
13 cks.	J. Matton
10	H. Johnson & Sons
ERPOOL.	
<i>ending May 6th.</i>	
3 cs.	
drate—	
6 cks.	J. T. Fletcher & Co.
lake—	
105 cks.	
76 cks.	
3 bls. 12 cs.	
34 cks. 200 bgs.	
23 134 23 crts.	
100	
1,000 brls.	
2,334 bgs.	W. & R. Graham & Co.
20 cks.	
2,185 bgs.	
610 t.	Roberts & Evans
lime—	
2,040 bgs.	
4 cks.	
33 cks.	Cunard S. S. Co., Ltd.
10 bls.	Widenmann Brocher
150 cs.	Ralli Bros.
<i>otherwise undescribed</i>	
1 cs.	
300 t.	Geo. G. Blackwell, Sons & Co.
12 cs.	Co-op W'sale Society, Ltd.
fid., 44 cs.	33 brls.
4 cks.	J. T. Fletcher & Co.
Oil—	
50 brls.	
rtar—	
23 cks.	
20	
its	
4 brls.	
4 bsks.	
64 cks.	
5 bgs.	Canary Islands Trading Co.
1,000 bxs.	

Divi Divi		
Rio Hacha,	225 t.	5 c.
"	300	E. Brownbill & Co.
Extracts		
Kingston,	19 cks. 81 bxs.	
Fustic		
Tampico,	781 ps.	
Kingston,	103	E. Challoner & Co.
Tampico,	1,825	H. Wedemeyer & Co.
Gambler]		
Genoa,	2 cs.	
Singapore,	3,107 bls.	659 bgs.
Indigo		
Constantinople,	7 cs.	
Logwood		
Belize,	370 t.	E. Brownbill & Co.
Madder		
Rotterdam,	1 ck.	
Myrabolams		
Bombay,	4,787 bgs.	E. D. Sassoon & Co.
"	5,460	W. & R. Graham & Co.
"	250	E. D. Sassoon & Co.
"	8	Ralli Bros.
Orchella		
Valparaiso,	10 bls.	
Shumac		
Bordeaux,	50 bls.	
Palermo,	qty.	
Turmeric		
Calcutta,	100 bgs.	
Valonia		
Antwerp,	82 bgs.	J. T. Fletcher & Co.
"	84	Barry Bros.
Smyrna,	86 t. 443	
"	103 6,570	
Syria,	408	
Marathonisa,	qty.	
Syria,	470	R. Shaw, Ltd.
Constantinople,	131	
Farina—		
Havre,	500 sks.	Cunard S. S. Co., Ltd.
Glucose—		
New York,	100 brls.	T. M. Duche & Sons
"	100	
Norfolk, Va.,	200	
Glue—		
Hamburg,	100 bgs.	
Fiume,	36 bls.	
Rotterdam,	140	
Genoa,	30 cs.	
Limestone—		
Antwerp,	2 crts.	
Manganese Ore—		
Poti,	2,500 t.	Forwood Bros. & Co.
"	875	
"	1,430	Caucasian Trading Co., Ltd.
Mineral White—		
Fiume,	100 bgs.	A. Bannermann & Co.
"	60	Winseer & Co.
"	50	
Genoa,	100	
Naphtha—		
New York,	4,682 brls.	
Oxalic Acid—		
Rotterdam,	8 cks.	
Paint—		
Boston,	20 cs.	
Amsterdam,	10 dms.	
Hamburg,	1 ck.	
Paraffin Scale—		
Philadelphia,	110 brls.	
Phosphates—		
Ghent,	3,500 bgs.	
Potash—		
New York,	1 brl.	Co-op W'sale Society, Ltd.
Ruven,	215 cks.	
Hamburg,	16	
Antwerp,	10 dms.	H. Moore & Co.
Portland,	2 brls.	
Potassium Prussiate—		
Genoa,	1 ck.	
Pumice Stone—		
Messina,	8 cks.	
Pyrites—		
Huelva,	1,289 t.	Matheson & Co.
"	1,452	

Rosin—		
Boston,	150 brls.	
Maranham,	14 bgs.	Pinto, Leite & Sobra
Ceara,	52	
Saltpetre—		
Hamburg,	3 cks.	
Calcutta,	4,103 bgs.	Ralli Bros.
"	324	
Silver Sulphide—		
Valparaiso,	1 cs.	Woodgate, jun., & Co.
Soap—		
New Orleans,	500 brls.	
New York,	12 crts.	W. H. Pellow & Co.
Bari,	65 cs.	
Norfolk, Va.,	72 160 bxs.	
Hamturg,	350 brls.	
Billao,	20 dms.	10 cakes
Teneriffe,	1	
Leghorn,	10	W. Underwood & Co.
Sodium Nitrate—		
Taltal,	15,159 bgs.	
Sulphur Silicate—		
Rotterdam,	1 ck.	
Starch—		
New York,	100 bgs.	T. M. Duche & Son
"	100	350 sks. J. T. Fletcher & Co.
Antwerp,	388 cs.	
"	45	
Fiume,	25	
Philadelphia,	110 brls.	J. Howard & Co.
Rotterdam,	117 cs.	
Bremen,	3	
Stearine—		
Antwerp,	1 ck. 51 bgs. & qty.	
"	13 bgs.	J. T. Fletcher & Co.
Sulphur—		
Catania,	200 cks. 365 bgs. 117 brls.	
Tallow—		
Boston,	166 tcs.	
B. Ayres,	80 pps. 100 bf. pps.	
Tar—		
Wilmington, N.C.,	4 056 brls.	
Tartar—		
Rotterdam,	4 cks.	
Naples,	6	
Treacle—		
Trieste,	1 brl. S. A. Acratopulo	
Boston,	1,000	
Philadelphia,	1,634	
New York,	100	
Bordeaux,	5 cs.	
Yarnish—		
New York,	2 cs.	Radiator Co.
"	20	M. Bell
"	3 brls.	
Waste Salt—		
Hamburg,	410 t. 300 bgs.	
White Lead—		
Rotterdam,	52 cks.	
Wood Pulp—		
Halifax,	4,701 bls.	
Boston,	521	70 crts.
Rotterdam,	247	
Boston,	140	Lever Bros.
Zinc Oxide—		
New York,	100 brls.	
Antwerp,	120	
Rotterdam,	20 cks.	J. Matthews & Co.
Zinc White—		
Hamburg,	80 cks.	
Rotterdam,	100	

MANCHESTER.

Week ending May 5th.

Acetic Acid—		
Rotterdam,	34 blns.	
Alizarine—		
Rotterdam,	125 brls. 3 cs.	
Alumina Sulphate—		
Rotterdam,	14 cks.	
Aluminous Cake—		
Rotterdam,	150 cks.	
Ammonia—		
Rotterdam,	37 cs.	
Ammonium Chloride—		
Rotterdam,	7 cks.	
Aniline Salts—		
Rotterdam,	5 cs.	

Barytes—		
Rotterdam,	100 bgs.	
Cobalt Oxide—		
Rouen,	2 cs.	
Colours—		
Rotterdam,	74 cks. 21 cs. 6 bxs.	
Boulogne,	4	
Antwerp,	15 pks.	
Cream of Tartar—		
Rotterdam,	12 cks.	
Farina—		
Rotterdam,	666 bgs.	
Hamburg,	100	
Glue—		
Rouen,	10 cks.	
Rotterdam,	5	100 bgs.
Antwerp,	7	
Hamburg,	60	
Indigo—		
Rotterdam,	4 cts.	
Limestone—		
Antwerp,	2 crts. J. T. Fletcher & Co.	
Naphthol—		
Rotterdam,	1 ck.	
Pitch—		
Antwerp,	57 cks.	
Rosin—		
Savannah,	2,920 brls.	
Sodium Bicarbonate—		
Rotterdam,	20 cks.	
Sodium Phosphate—		
Hamburg,	13 cks.	
Starch—		
Rotterdam,	141 cs.	
Antwerp,	305	
Hamburg,	152	
Sulphuric Acid—		
Rotterdam,	10 cks.	
Tartar—		
Rotterdam,	6 cks.	
Tartaric Acid—		
Rotterdam,	5 cks.	
Waste Salt—		
Hamburg,	qty.	
Waste Tar—		
Rotterdam,	4 cks.	
Wood Pulp		
Rotterdam,	10 bls.	
Hamburg,	200	
Fredrickstadt,	950	W. H. Ingram
Zinc Oxide—		
Rotterdam,	25 brls.	
Antwerp,	10	
Zinc Sulphate—		
Rotterdam,	5 brls.	
Zinc White—		
Rotterdam,	25 cks.	

HULL.

Week ending May 5th.

Aluminium—		
New York,	51 bxs.	Wilson, Sons, & Co., Ltd.
Barytes—		
Bremen,	22 cks.	Sissons Bros. & Co.
"	22	W. R. Todd & Son
Rotterdam,	46	Hutchinson & Son
Antwerp,	55	Bailey & Leatham, Ltd.
"	179	Blundell, Spence, & Co.
Bremen,	36	
Amsterdam,	45	W. & C. L. Ringrose
Chemicals (otherwise undescribed)		
Christiania,	60 cks.	Wilson, Sons, & Co., Ltd.
Dunkirk,	2	
Antwerp,	83 pks.	
Hamburg,	40	10 dms.
Riga,	81	
Cod Oil—		
Drontheim,	80 brls.	Wilson, Sons, & Co., Ltd.
Aalesund,	30	
Bergen,	179 cks.	
Hamburg,	5	
Colours—		
Rotterdam,	80 pks.	W. & C. L. Ringrose
"	1 cs.	Wilson, Sons, & Co., Ltd.
Christiania,	13 cks.	
Antwerp,	13	20 pks.
Hamburg,	5 cs.	G. Malcolm & Son

Soda—					
7 t.	8 c.	£50			
12	17	22			
12	9	243			
6	6	12			
(otherwise undescribed)					
12 cks.	3 cs.	17 dms.	£182		
3	10				
5	3 pks.	49			
6	40				
18	3	11			
75	20				
8	5	35			
Id—					
1 t.	38 pks.	£442			
6 kgs.	2 c.	34			
10	56				
10	60				
3	18				
1	7				
1	1	7			
5	1 ck.	29			
5	30				
5	33				
ducts—					
5 cs.	£263				
26 dms.	£900				
5 cks.	£40				
174 cks.	£467				
249	1,081				
5 cs.	£19				
20 dms.	£480				
125 cks.	10 puns.	815			
75 rnlts.	400				
100 brls.	£64				
70,173 gallons	822				
15 brls.	£10				
9 cks.	1 cs.	£165			
6 pks.	200				
10	37				
25 cks.	£110				
61 cks.	£77				
25	51				
677 bgs.	138				
100	55				
10 kgs.	£3				
679 bgs.	151				
1,050	277				
1,650	1,686				
140	1,940				
20	6				
4,552 bgs.	300 cks.	10 brls	963		
669	56	371			
180 t.	229				
250	281				
70 dms.	£14				
300	9				
100	19				
750	1,200 brls.	1,048			
275 brls.	£190				
11 cks.	£47				
ducts (otherwise undes.)—					
30 pks.	£21				
Sulphate—					
150 t.	15 c.	£15			
4	18	2,643			
10	6	87			
138	14	180			
14	2,776				
f Tartar—					
3 c.	£12				
15	58				
5	15				
3	10				
stants—					
21 cs.	£13				
16 pks.	74				
43 cks.	310				
200 dms.	22	235			
me.	231	316			
300	925 dms.	295			
50	70				
80	21				
43	21				
525	50				
Dried Blood—					
Dunkirk,	95 t.	£520			
Guano—					
Rotterdam,	53 t. 13 c.	£520			
Hydrochloric Acid—					
Mauritius,	30 pks.	£17			
Lime—					
St. Vincent,	3 t. 8 c.	£20			
Manure—					
Rotterdam,	4 t. 10 c.	£27			
Demerara,	30	89			
Paris,	2	40			
Cullera,	599	8	2,250		
Barbadoes,	15	10	62		
Mercuric Chloride—					
Bombay,	5 c.	£55			
Myrbane—					
New York,	20 dms.	£38			
Hamburg,	1 runlet	12			
St. Petersburg,	5 cs.	18			
Nitric Acid—					
Madras,	15 cs.	£11			
Nitrous Oxide—					
Sydney,	4 cs.	£37			
Oxalic Acid—					
Yokohama,	10 brls.	£33			
Oxygen—					
Amsterdam,	1 cs.	£40			
Phosphates—					
Mauritius,	50 t.	£414			
Phosphoric Acid—					
Mauritius,	117 t. 5 c.	£1,814			
Phosphorus—					
Brussels,	8 cs.	£80			
Pt. Chalmers,	10	102			
B. Ayres,	10	107			
Otago,	10	10			
Potassium Chlorate—					
Ghent,	1 t.	£36			
B. Ayres,	2 c.	78			
Otago,	14	40			
Potassium Cyanide—					
Pt. Elizabeth,	20 t.	£1,493			
Shanghai,	5	10			
Auckland,	5	450			
Potassium Permanganate—					
Bombay,	5 c.	£19			
Potassium Prussiate—					
Rouen,	1 t.	£45			
Rotterdam,	125	125			
Konigsberg,	10	465			
Genoa,	2	96			
Dameig,	8 kgs.	5	70		
Zanzibar,	10 cs.	21			
New York,	10 cs.	179			
Genoa,	2	25			
Saltpetre—					
Pt. Elizabeth,	1 t. 2 c.	£24			
Durban,	1 3	22			
Oporto,	3 8	64			
Sheep Dip—					
B. Ayres,	10 t. 12 c.	£564			
Pt. Elizabeth,	20 dms.	4			
Brisbane,	150	25 cs.	163		
Sydney,	160	75 kgs.	5 cks.	194	
Soda—					
Penang,	15 c.	£7			
Soda Crystals—					
Boston,	1 t. 15 c.	£25			
Sodium Bicarbonate—					
Pt. Elizabeth,	5 t. 12 c.	£44			
Marseilles,	1	11			
Launceston,	1	7			
Yokohama,	1	28			
Sulphur—					
E. London,	20 kgs.	£7			
Sulphuric Acid—					
Pt. Elizabeth,	40 cs.	£26			
Colombo,	5	7			
Superphosphates—					
Mauritius,	125 t.	£358			
Rotterdam,	3	18 c.	18		
Barbadoes,	101	15	275		
Tartaric Acid—					
B. Ayres,	5 c.	£33			
Melbourne,	5	33			
Durban,	3	17			
Hamburg,	2 cks.	60			
Cape Town,	4	26			
Auckland,	3	17			
LIVERPOOL.					
<i>Week ending May 12th.</i>					
Albumen—					
Hamburg,	5 c.	£20			
Alum—					
Montreal,	9 t.	£45			
Dunedin,	1	3 c.	1 q.	7	
Alexandria,	6	10	32		
New York,	4	14	1	29	
Calcutta,	7	6	2	34	
Galatz,	12	19	1	63	
B. Ayres,	12	19	57		
Valparaiso,	1	9	1	7	
Alumina					
Antwerp,	1 t. 2 c.	£20			
Ammonium Carbonate—					
Amsterdam,	4 kgs.	£6			
Libau,	1 t. 10 c.	14			
Riga,	1 t. 16	50			
Genoa,	2	14	76		
Lisbon,	3	3	2 q.	31	
Ammonium Chloride—					
Montreal,	1 t. 11 c.	£29			
Naples,	1	19			
Antwerp,	16	15			
Galatz,	5	8			
Odessa,	5	165			
Genoa,	6	6	131		
Ibrail,	1	2	20		
Ammonium Sulphate—					
Samarang,	172 t. 17 c.	2 q.	£1,382		
Alexandria,	1	1	8		
Demerara,	25	18	2	222	
Madeira,	2	16			
Las Palmas,	22	175			
Gd. Canary,	13	10	113		
Nantes,	15	6	2	120	
New York,	26	2	200		
Valencia,	56	2	340		
Sourabaya,	154	5	1,235		
Bleaching Powder—					
Baltimore,	19 cks.				
Bilbao,	45				
Bombay,	40 cs.				
Boston,	674				
B. Ayres,	40 pks.				
Calcutta,	60				
Dunedin,	8				
Dunkirk,	18				
Genoa,	994				
Ghent,	71				
La Pallice,	30				
Leghorn,	30				
Maranham,	10				
Montreal,	60				
Naples,	30	34 pks.			
New York,	411	65 bxs	65 brls.		
Oporto,	14	6			
Pireus,	3				
Riga,	5	30 kgs.	10		
Rio de Janeiro,	28				
Rotterdam,	32				
Seville,	20				
Tampico,	67				
Vera Cruz,	25				
Bone Ash—					
Marseilles,	5 t. 1 c.	2 q.	£38		
Boric Acid—					
Valparaiso,	2	9 c.	3 q.	£16	
Yokohama,	18				
Borax—					
E. London,	6 c.	£6			
Adelaide,	1 t. 19	39			
Montreal,	4	5	85		
Halifax,	1	3	1 q.	24	
Stettin,	1	20			
Galatz,	16	20			
Hamburg,	14	18	1	273	
Antwerp,	9	7	187		
Rotterdam,	10				
Yokohama,	2	19	2	60	
Calcium Chloride—					
New York,	7 t. 5 c.	£15			
Carbolic Acid—					
Antwerp,	4 c.	3 q.	£7		
Hamburg,	11 t. 15	1	751		
Adelaide,	207 galls.	17	2	41	
Caustic Potash—					
Sydney,	1 t. 11 c.	£50			
Melbourne,	1	10	50		
New York,	6	14	207		
Caustic Soda—					
Acajutla,	70 dms.				
Adelaide,	50				
Alexandria,	32				
Algoa Bay,	8	45 cs.			
Amsterdam,	145				
Ancona,	53				
Antwerp,	56 cks.				
Bahia,	40				
Baltimore,	260				
Barcelona,	105	185			
Bari,					
Bilbao,	59				
Boston,	274				
B. Ayres,	50				
Calcutta,	130				
Ceara,	20				
Dunedin,	30				
Dunkirk,	9				
Fairwater,	6				
Fiume,	50				
Galatz,	30				
Genoa,	250				
Hamburg,	238				
Ibrail,	355				
Kingston,	75				
La Guayra,</					

Talcahuano,	4	9	1 q.	83
Danzig,	4	2	2	65
Fiume,	93	18	1	1,543
Trieste,	149	1	2	2,337
Ancona,	72	3	1	1,233
Marseilles,	14	14		259
Venice,	24	17	3	401
Paris,	15	2	2	281
Bari,	24	28	3	420
Ghent,	2			34
Lisbon,	5			76
Cette,	192	15	2	3,650
Galatz,	1	9		25
New York,	9	19	1	169
Para,	10			9
Christiania,	11	1		9
Barcelona,	13	3		227
Fairwater,	5	3	1	93
Nantes,	45	7	3	730
Genoa,	108	19	3	1,614
Bordeaux,	432		2	7,093
Naples,	88	14	1	1,399
Leghorn,	69	2	1	1,154

Copperas—

Alexandria, 11 t. £20

Disinfectants—

Kingston, Ja., 4 c. £11

Bombay, 6 t. 84

New York, 3 7 q. 5

Iron Oxide—

Genoa, 6 t. 16 c. £47

B. Ayres, 35 10 100

Magnesia—

Barcelona, 5 cs.

Santander, 20 cks.

Magnesium Chloride—

Genoa, 3 t. 2 c. £6

Magnesium Sulphate—

Lisbon, 10 cks.

Montreal, 10 brls

Manure—

St. John's, N.H., 9 t. 1 c. 1 q. £45

Gd. Canary, 10 79

Bordeaux, 10 15 30

Muriatic Acid—

Pernambuco, 19 c. £12

Oxalic Acid—

Philadelphia, 5 t. 14 c. £172

Paint—

Axion, 13 kgs. 14 dms

Barbadoes, 20

Beyrout, 1 brl.

Benguela, 2 2 cks.

Calcutta, 9

Cape Town, 52 22 1

Ceara, 2 cs 5

Constantinople, 44 9

E. London, 5 brls. 6

Egwanga, 31 30

Galatz, 3 5 58 pks

Gibraltar, 11

Havana, 9

Iquique, 8 1 cs.

Jaffa, 2 1 94 dms.

Lagos, 3 tcs.

Lisbon, 25 pks.

Malta, 2 cs.

Maranham, 4

Mossamedes, 100 527 brls.

New York, 1 tcs. 23

Penang, 20

Port Said, 5 2 dms

Rangoon, 11

St. John's, N.H., 254 3 cs.

St. John's, 22 pks.

St. Thomas, 52

Santos, 2 cs 100

Seville, 13 brls.

Sierra Leone, 88

Valparaiso, 20

Wellington, 4 371

Painters' Colours—

Adelaide, 1 cks 303 kgs. 1 dm.

Alexandria, 2 127 brls.

Bahia, 2 cs 68 7

Baltimore, 17

Bremen, 400 bgs.

Smyrna, 8 347

Paraffin Wax—

Alexandria, 5 cs.

Antwerp, 5

B. Ayres, 2

Pernambuco, 12 cks.

Tampico, 10 bgs.

Phosphorus—

Vera Cruz, 2 c. 2 q. £32

Yokohama, 1 t. 260

Hiogo, 3 5 720

Shanghai, 15 150

Trinidad, 3 30

Picric Acid—

Philadelphia, 5 c. £25

Potassium Bichromate—

Pernambuco, 3 c. 2 q. £10

Ghent, 5 t. 3 206

Alexandria, 2 10 106

Potassium Carbonate—

Boston, 8 t. 17 c. £190

Potassium Chlorate—

Sydney, 10 c. £20

Copenhagen, 2 t. 10 98

Amsterdam, 10 19

Corunna, 10 18

Rio de Janeiro, 1 36

Rotterdam, 2 15 100

Hamburg, 3 92

Bari, 10 17

Naples, 1 32

New York, 15 5 549

Adelaide, 10 22

Gutjewsky, 10 336

Hiogo, 32 10 1,118

Potassium Prussiate—

Calcutta, 5 c. £12

Potassium Silicate—

Amsterdam, 1 t. 7 c. 1 q. £10

Salt—

Abonnema, 57 t. 2 c.

Adelaide, 20

Akassa, 562

Algoa Bay, 13 19

Antwerp, 441 15

Bakana, 30 2

Baltimore, 945 9

Batanga, 12 10

Bathurst, 250

Boston, 399 16

B. Ayres, 65 17

Buguma, 27

Calcutta, 6,134

Camercons, 60

Conakry, 37 10

Copenhagen, 400

Egwanga, 40 3

Galveston, 230

Ghent, 55

Kingston, 40

Lagos, 100

Landana, 13 15

Loango, 2 4

Melbourne, 300

Miramichi, 250

Monrovia, 56 14

Montreal, 616

Newcastle, 35

N. Orleans, 293

New York, 213

Old Calabar, 90 4

Opobo, 40

Para, 31 5

Pt. Royal, 1,100

Quebec, 2,200

Richibucto, 220

N.B., 23

Rotterdam, 23

St. John's, N.B., 110

St. John's, 3 1

San Francisco, 792

Sierra Leone, 200

Sydney, 601 15

Valparaiso, 100

Wellington, 259

Salt Cake—

Melbourne, 5 t. 1 c. £12

New York, 4 8 76

Sheep Dip—

E. London, 37 cs. 6 t. 4 c. 2 q. £53

Soap—

Addah, 105 bxs.

Alexandria, 45

Algoa Bay, 1,650 13 bdls. 10 cs.

Amsterdam, 250 2,040

Antwerp, 20

Appam, 20

Attaboe, 82

Barbadoes, 500

Batavia, 3,000

Bathurst, 101

Bayin, 63 50

Beira, 600

Belize, 600

Bombay, 91

Bonny, 100

Bordeaux, 500

B. Ayres, 2

Calcutta, 5 18

Cape Town, 950

Colon, 200

Constantinople, 1

Coquimbo, 1

Delagoa Bay, 1,575

Demerara, 1,661

Drewin, 126

E. London, 825

Genoa, 278

Gd. Bassa, 43

Half Jack, 20

Hamburg, 302 500

Havre, 45 crts. 735

Lisbon, 6 cbts.

Macassar, 600 bxs.

Madras, 15

Manaos, 200

Malta, 3 dms.

Monrovia, 124

Montreal, 5 501

New York, 750 2 cks.

Old Calabar, 1,200

Para, 150

Penang, 48

Pt. Elizabeth, 1,700

Pt. Natal, 350 3

Pram Pram, 103

Rangoon, 1,001 5

Rouen, 25

Rotterdam, 203

St. John's, 25

St. Lucia, 223

Salt Pond, 130

San Juan, 200

Santa Cruz, 224

Shanghai, 4,152

Singapore, 1,205

Trinidad, 150

Valparaiso, 200

Vera Cruz, 1

Soda—

New York, 431 brls.

Sydney, 100 kgs.

Soda Alkali—

Barcelona, 80 brls.

Lisbon, 735

Quebec, 40

Soda Ash—

Antwerp, 2,050 bgs.

Barcelona, 35 cks.

Boston, 1,800 78 tcs. 150

B. Ayres, 217

Calcutta, 151

Christiania, 100

Copenhagen, 103

Genoa, 296

Hamburg, 1,050 43

Leghorn, 9

Libau, 320 22

Maranham, 10

Melbourne, 505

Montreal, 150

Naples, 24

New York, 850 61 46

Oporto, 20

Philadelphia, 3,760 163 8

Puerto Cabello, 50 brls. 43

Rio de Janeiro, 350

Rotterdam, 270

St. Petersburg, 50

San Sebastian, 50

Santos, 3

Savanna, 90 kgs.

Smyrna, 450 bgs.

Stettin, 295

Sydney, 172

Trieste, 100 220

Yokohama, 14

Talcuano, 4 t. 16 c.

Soda Crystals—

Calcutta, 125 bgs. 126 cks.

Baltimore, 65 kgs. 34 brls.

Halifax, 50 60

M. Video, 20

Montreal, 30 334 305 469

Philadelphia, 6 cs 250 pks.

Rio de Janeiro, 280

San Francisco, 8

Seville, 300

Talcuano, 4 t. 16 c.

Sodium Arseniate—

Boston, 18 cks.

Rio de Janeiro, 7 brls.

Sodium Bicarbonate—

Adelaide, 200 bgs.

Algiers, 30 kgs.

Algoa Bay, 20

Bari, 100

Beyrout, 189 4 cks.

Bombay, 35 pks.

Bordeaux, 180 kgs.

Bourgas, 40

B. Ayres, 100 14

Calcutta, 400

Calicut, 11

Callao, 3

Catania, 30

Colombo, 4

Copenhagen, 20 16

Corunna, 10 brls.

Galatz, 50 bgs.

Genoa, 180 24

Gutjewsky, 200

Halifax, 75 30 106

Oil—	10 cks.
2 brls.	3
ylamine—	7 cks.
Wax—	28 cks.
3 cs.	102 brls.
5 bxs 3 cs.	40 brls.
ystals—	25 brls.
Naphthionate—	31 cks.
Stannate—	3 cks.
1 dm.	

HULL.

Week ending May 8th.

um Sulphate—	330 cks.
68 bgs.	
oda—	17 dms.
5 dms.	410
(otherwise unrescribed)	
1 ck.	
60	25 pks.
4	25
30 cs.	
11	
25	150
27	
13	10
200	150 btl.
50	
ulphate—	2 cks.
ed Oil—	165 c.
1,086	
135	
1,006	
8,087	
1,087	
300	
405	
(otherwise unrescribed)	
3 cks.	
Oil—	8 c.
70	
35	
45	
602	
138	
37	
321	
51	
34	

Colours—

4 cks. 3 cs.	26 pks.
17	4
35	2 dms.
31	2
18	26
2	2 pks.
23	5 dms.
24	
20	
25	10
2	

Riga,	1
Rotterdam,	7
Pitch—	5
Antwerp,	242 t.
Dunkirk,	225
Soap—	
Bergen,	20 cs.
Stettin,	1
Soda Ash—	
Norrkoping,	6 cks.
Tallow—	
Antwerp,	31 cks.
Genoa,	qty.
Tar—	
Antwerp,	4 cks.
Amsterdam,	6
Danzig,	5
Dunkirk,	5
Gothenburg,	250
Hamburg,	10
Konigsberg,	2
Rotterdam,	2
Turpentine—	
Hango,	10 cks.
Yarnish—	
Antwerp,	1 ck.
Amsterdam,	1 2 cs.
Bremen,	1
Danzig,	1
Genoa,	2
Hamburg,	1
Stockholm,	1 16
Whiting—	
Hamburg,	20 bgs.

GLASGOW.

Week ending May 13th.

Ammonium Sulphate—	
Barbadoes,	204 t. 15 1/4 c.
Kingston,	14
Benz ne—	£85
France,	
Bleaching Powder—	16 t. 2 c
Melbourne,	
Castor Oil—	£41
Canada,	
Caustic Soda—	
Calcutta,	36 t.
Canada,	11 19 1/4 c.
Coal Products	
Creosote Oil	
Danzig,	52 t. 10 c.
France,	£67
Russia,	350
Pitch	
St. Petersburg,	£70
Havre,	100 t.
Canada,	252
France,	400
Russia,	85
Bombay	89
Tar	
St. Petersburg	£1,400
Danzig,	405 t.
Rangoon,	£145. 13s.
Russia,	135
Bombay,	46
Calcutta,	2.8 15
Tar and Pitch	£130
Madras,	
Coal Products (otherwise undes.)—	
Havre,	£53
Rotterdam,	515
Disinfectants—	
Bombay,	qty.
Dextrinc—	
U.S.A.,	qty.
Extracts—	
Toronto,	£97
Lead Nitrate—	
Canada,	3 t.
Linseed Oil—	
Ad-laide,	1,250 gls.
Canada,	10 t. 15 1/4 c.
Kingston, Jam.,	7 4 1/2
Malta,	534 gls.
Logwood—	
Canada,	12 t. 18 3/4 c.
Victoria,	£61
Manure—	
Barbadoes,	20 t. 2 1/2 c.
Kingston,	8
Trinidad,	70 6 1/2
Paint—	
Melbourne,	3 t. 3 1/2 c.
Pt. Said,	£43
Colombo,	£72. 10s.

Painters' Colours—

Calcutta,	£669
Rotterdam,	60
Cape Colony,	66
Cape Town,	qty.
E. London,	21
Johannesburg,	63
Malta,	268
Melbourne,	341
Rangoon,	100
Algou Bay,	14
Bermuda,	
Bombay,	59
Montreal,	31
Oporto,	58
U.S.A.,	37
Stockholm,	25

Paraffin Wax—

Bari,	1 t. 16 c.
Bordeaux,	£120
Fiume,	13 10
Italy,	4
Rouen,	1 2

Potassium Bichromate—

Italy,	21 t. 15 1/4 c.
Turkey,	£210
Venice,	128
Calcutta,	85
Canada,	78
Stockholm,	16

Rosin Oil—

Montreal,	£20
-----------	-----

Soap—

E. London,	2 t. 10 c.
Grenada,	1 6 1/4
Bombay,	2 6 1/4

Sodium Bichromate—

Italy,	26 t. 11 c.
Rouen,	26
Canada,	11 14 1/4

Sodium Sulphate—

London, Ont.,	£32. 13s.
---------------	-----------

Starch—

Germany,	£16
----------	-----

Sulphuric Acid—

Rangoon,	4 t.
Durban,	£75

Tallow—

Rotterdam,	15 t. 10 c.
Oporto,	1 3

Treacle—

E. London,	1 t. 10 c.
Christiania,	14 8
Natal,	3 2 1/2
Aalesund,	21 11
Drontheim,	2 16

Yarnish—

Melbourne,	32 gls.
Rangoon,	£74 11s.

White Lead—

Cape Town,	£38
------------	-----

Zinc Ashes—

Rotterdam,	14 t.
"	£130

TYNE.

Week ending May 8th.

Alkali—	
Antwerp,	12 t. 7 c.
Christiania,	21 19
Rotterdam,	7 19
Ammonia—	
San Francisco,	30 t. 2 c.
Anthracene—	
Rotterdam,	51 t. 17 c.
Antimony—	
Hamburg,	2 t. 10 c.
Christiania,	1
Rotterdam,	10
Barium Bin oxide—	
Rouen,	23 t. 4 c.
Bleaching Powder—	
Antwerp,	71 t. 10 c.
Christiania,	22 4
Rotterdam,	26 3
Aalborg,	17
Amsterdam,	14 11
San Francisco,	74 16
Konigsberg,	7 18
Castor Oil—	
Bergen,	7 c.
Caustic Potash—	
Konigsberg,	1 c.
Caustic Soda—	
Antwerp,	2 t. 14 c.
Christiania,	8 13
Reval,	15 2
Rotterdam,	24 6

Bergen,	1 3
San Francisco,	87
Konigsberg,	12

Hydrochloric Acid—

Ergasteria,	2 c
-------------	-----

Lamp Black—

Gothenburg,	2 t.
-------------	------

Linseed Oil—

Bergen,	1 t.
---------	------

Litharge—

Hamburg,	1 t.
Antwerp,	9 c.
Rotterdam,	5
Amsterdam,	1 11

Magnesia—

Hamburg,	1 t. 14 c.
Rotterdam,	8

Manure—

Bergen,	5 t.
---------	------

Paint—

Pomaron,	15 c.
Hamburg,	1 t. 10
Antwerp,	1 10
Rotterdam,	6
Bergen,	8
Genoa,	13

Soda—

Hamburg,	4 t. 6 c.
Antwerp,	5
Rotterdam,	25 3
Amsterdam,	10
San Francisco,	19 14
Esbjerg,	31 13

Soda Ash—

Antwerp,	6 t. 16 c.
Bergen,	11 7
Konigsberg,	73 11

Soda Crystals—

Pomaron,	1 t. 19 c.
----------	------------

Sodium Sulphate—

Antwerp,	30 t.
Christiania,	100

Turpentine—

Bergen,	6 c.
---------	------

GOOLE.

Week ending May 5th.

Alkali—	
Amsterdam,	3 cks.
Benzol—	
Rotterdam,	25 cks.
Chemicals (otherwise unrescribed)	
Amsterdam,	1 pk.
Antwerp,	3 cks.
Boulogne,	2
Ghent,	100 t.
Hamburg,	20 cks. 4 dms.
Coal Products (otherwise undes.)—	
Antwerp,	1 dm.
Boulogne,	14 cks. 2 cs.
Ghent,	4
Hamburg,	80
Rotterdam,	915

Colours—

Amsterdam,	21 cks. 2 cs. 6 dms.
Ghent,	1
Hamburg,	1
Harlingen,	1

Dyestuffs (otherwise unrescribed)

Amsterdam,	5 cks.
------------	--------

Pitch—

Antwerp,	314 t.
Dunkirk,	788

Soap—

Amsterdam,	3 cks. 2 cs.
Ghent,	1

GRIMSBY.

Week ending May 8th.

Alkali—	
Hamburg,	20 cs.
Caoutchouc—	
Gothenburg,	2 cs.
Malmo,	7 bls.
Chemicals (otherwise unrescribed)	
Dieppe,	4 cks.
Coal Products (otherwise undes.)—	
Dieppe,	48 cks.
Rotterdam,	2
Colours—	
Malmo,	12 cks.

PRICES CURRENT.

WEDNESDAY, MAY 19TH, 1897.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 110, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	5/10½	&	8/9
" Glacial	"	"	"	40/-
Arsenic S.G., 2000°	"	1	4	0
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	"	0	0	1½
Oxalic	nett	"	0	3½
Phosphoric, 1750°	"	0	0	11½
Picric	"	0	0	11
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	7	6
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	"	0	1	1
Arsenic, white powdered	nett per ton	23	0	0
Alum (loose lump)	"	4	10	0
Alumina Sulphate (pure)	"	4	2	6
Aluminoferrous	"	2	3	6
Aluminium (Ingot metal 98/99½ %)	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	3
" 880=28° B.	"	0	0	2½
" =24° B.	"	0	0	1½
" Carbonate	nett	"	0	3
" Muriate	per ton	18	7	6
" (sal-ammoniac) 1st & 2nd	per cwt.	33	&	31/-
" Nitrate	per ton	32	0	0
" Phosphate	per lb.	0	0	4½
" Sulphate (grey) London	per ton	7	11	3
" (grey) Hull	"	7	11	3
Aniline Oil (pure)	per lb.	0	0	6½
Aniline Salt	"	0	0	6
Antimony	per ton	30	15	0
" (tartar emetic)	per lb.	0	0	9
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	12	6
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	42	6	10 65/-
Bleaching Powder, 35 %	nett	"	6	10 0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	12	0	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	"	15/-	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	6½
Magenta	"	0	3	0
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	6½
Benzol, 90's	per gallon	0	1	6
" 50/90	"	0	1	11
Carbolic Acid (crude 60°)	per gallon	0	2	5
" (crystallised 40°)	per lb.	0	0	8
" (liquid 95/97 %)	per gallon	0	1	1
Creosote (ordinary)	"	0	0	2
" (filtered for Lucigen light)	"	0	0	2½
Crude Naphtha 30 % @ 120° C.	"	0	0	11
Grease Oils, 22° Tw.	per ton	2	15	0
Pitch, f.o.b. Liverpool or Garston	"	1	2	6
Solvent Naphtha, 90 % at 160°	per gallon	0	1	8
Copper	per ton	49	0	0
" Sulphate	"	16	10	0
" Oxide (copper scales)	"	44	10	0
Glycerine (crude)	"	31	0	0
" (distilled S.G. 1250°)	"	62	0	0
Iodine	nett, per oz.	0	0	7½
Iron Sulphate (copperas)	per ton	1	10	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	13	2	6
" Litharge Flake (ex ship)	"	14	15	0
" Acetate (white)	"	22	0	0
" " (brown)	"	15	5	0
" Carbonate (white lead) pure	"	16	15	0
" Nitrate	"	19	0	0
Lime, Acetate (brown) (ex ship)				
" (grey) (ex ship)	per ton	5	0	0
Magnesium (ribbon and wire)	per oz.	0	2	7
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Calcined Magnesia	per ton	9	0	0
" Sulphate (Epsom Salts)	per ton	2	15	0
Manganese, Sulphate	"	16	0	0
" Borate	per cwt.	2	10	0
" Ore, 70 %	per ton	3	10	0
Methylated Spirit, 61° O.F.	per gallon	0	1	8
Naphtha (Wood), Solvent	"	0	2	8
" Miscible, 60° O.P.	"	0	3	3
Oils:—				
Cotton-seed	per ton	15	10	0
Linseed	"	16	0	0
Stearine	per ton	19	10	0
Phosphorus (yellow)	per lb.	0	2	2
" (red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
" Bichromate	nett per lb.	0	0	4½
" Carbonate, 90% (ex ship)	per ton	17	5	0
" Chlorate	per lb.	0	0	4
" Cyanide, 98%	"	0	0	11
" Hydrate (Caustic Potash) 90 %	per ton	24	0	0
" (Caustic Potash) 75/80 %	"	20	15	0
" (Caustic Potash) 70/75 %	"	19	15	0
" Nitrate (refined)	per cwt.	1	1	6
" Permanganate	per cwt.	3	15	0
" Prussiate Yellow	per lb.	0	0	5
" Sulphate, 90 % (ex ship)	per ton	9	15	0
" Muriate, 80 % (do.)	"	8	10	0
Silver (metal)	per oz.	0	2	3½
Sodium (metal)	per lb.	0	2	11
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
" (Caustic Soda-ash) 48 %	"	4	5	0
" (Carb. Soda-ash) 48 %	"	4	0	0
" (Alkali) 58 %	"	3	17	0
" (Soda Crystals)	"	2	5	0
" Acetate (ex-ship)	"	12	5	0
" Arseniate, 45 %	"	15	10	0
" Chlorate	per lb.	0	0	4½
" Borate (Borax)	net, per ton	16	0	0
" Bichromate	per lb.	0	0	3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	0	0	0
" (74 % Caustic Soda)	"	8	0	6
" (70 % Caustic Soda)	"	7	0	6
" (60 % Caustic Soda)	"	6	0	6
" (pure liquor 90° Tw.)	"	3	15	0
" 77/78 % powdered (99 % hydrate)	"	13	0	0
" Bicarbonate	"	6	10	0
" Hyposulphite	"	5	0	6
" Manganate, 25%	"	15	0	0
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0	8	0
" Nitrite, 98 %	per ton	30	0	0
" Phosphate	"	11	0	0
" Silicate (glass)	per ton	4	10	0
" (liquid, 100° Tw.)	"	3	10	0
" Stannate, 40 %	per cwt.	3	0	0
" Sulphate (Salt-cake)	per ton	0	10	0
" (Glauber's Salts)	"	1	7	0
" Sulphide	"	6	15	0
" Sulphite	"	5	0	0
Strontium Hydrate, 100%	"	8	0	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	0
" Barium, 95 %	"	0	0	0
" Potassium	"	0	0	0
Sulphur (Flowers)	per ton	7	10	0
" (Roll Brimstone)	"	6	10	0
" Brimstone: Best Quality	"	4	15	0
Superphosphate of Lime (26 %)	"	2	15	0
Tallow	"	18	0	0
Tin Crystals	per lb.	0	0	0
" English Ingots	per ton	65	0	0
Zinc Spelter	"	17	5	0
" Chloride (solution, 100° Tw.)	"	5	0	0
" Sulphate, Crystal	"	5	0	0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

3.

SATURDAY, MAY 29, 1897.

Vol. XX.

Contents.

PAGE	PAGE
..... 361	Chemical Industries in Java 368
Monoxide 362	Trade Notes 368
tings 362	Tar and Ammonia Products 368
Wood 362	Miscellaneous Chemical Market 368
..... 363	The Metal Markets 369
Complete Speci- 363	Liverpool Oil and Colour Market 369
f California 363	Hull Paint, Oil, and Colour Report 369
ical Industries 364	West of Scotland Chemicals 369
Uses of Ozone 365	Tyne Chemical Report 369
ponents 365	New Companies 370
ary 366	Gazette Notices 370
ies 366	Imports 370
..... 367	Exports 372
	Prices Current 376

ADVERTISEMENT.

ORE FOR SALE.—For particulars apply
Chemical Trade Journal Office, Manchester.

D a Mill for Grinding Mineral Ores in Water.
n out a finely levigated article, and must be cheap.—Price and full
32, C/o C. Birchall, Advertisement Contractor, Liverpool.

TENDER.

DUNTY BOROUGH OF HALIFAX.

Works Committee of the Halifax Corpora-
pared to receive TENDERS for the supply of
TRIC ACID,
OF IRON,
ase of
OXIDE OF IRON,
ONE,
t.
onths ending the 30th of June, 1898.
er and further information may be obtained on application to
ate, Engineer, Gas-Works, Halifax.
ly endorsed, to be sent to the undersigned before ten o'clock a.m.
e 2nd of June, 1897.

By Order,
KEIGHLEY WALTON,
Town Clerk.

Notices.

ications for the *Chemical Trade Journal* should be
Cheques and Post Office Orders made payable to—
ROS., 32, Blackfriars Street, MANCHESTER.
Our Registered Telegraphic Address is—

"Expert, Manchester."
NATIONAL TELEPHONE 3060.
of Subscription, commencing at any date, to the
de *Journal*,—payable in advance,—including postage
he world, are as follows:—
(52 numbers) 12s. 6d.
early (26 numbers) 6s. 6d.
ly (13 numbers) 3s. 6d.

Advertisements.

isements of Situations Vacant, Premises on Sale or To be Let,
ants, and Specific Articles for Sale by Private Contract are
chemical Trade Journal at the following rates:—
ords and under 2s. 0d. per insertion
additional to words 0s. 6d.

CURRENT TOPICS.

THE WORKMEN'S COMPENSATION BILL.

THIS Bill is not getting through Committee as easily as
its supporters were inclined to think, and we are scarcely
surprised to find this is the case.

There were a number of proposed instructions to the Com-
mittee, but the majority of these were found to be out of
order. In fact, the only amendment that was in order was a
proposition affecting the white lead industry in particular,
and also the chemical trade in general. It was moved by Mr.
Tennant, and was to the following effect:—

"That it be an instruction to the Committee that they have power
to insert provisions to secure compensation to workmen for injuries
to health arising out of, and in the course of, their employment." He
held that under this Bill a man who suffered injury to his health
might be in a worse case than the man who was injured by an acci-
dent, for the former might be permanently disabled and yet receive
no compensation. He referred especially to the case of the lead
workers, men who had no trade organization and no benefit societies.
He gave several instances in the lead industries where employes
became ill through the unhealthy nature of their employment, and
argued that they justified the adoption of the instruction.

Seeing that this industry has been fully dealt with by the
Committee on Dangerous Occupations, and special rules pro-
vided for it under the Factory Acts, it seems rather grasping
to ask for more, especially as the definition of injury to health
is so wide. Mr. Burns indulged in the usual appeal to the
feelings through the statistics about the dangers of chemical
workers, and was surprised that the Government were opposed
to the amendment, since the effect would be to add very little
to the liability of the employers.

The tone which has characterised our remarks on previous
occasions touching the alleviation of chemical labourers'
dangers and hardships will be sufficient to dispel any charges
of excessive partiality, when we venture to say that it is
evident Mr. Burns is more familiar with statistics than with
the difficulties of getting workmen to take reasonable care of
themselves, and if the door was opened to the claims of
compensation for injury to health as resulting from chemical
occupation in general, the doctors and lawyers would soon
be retiring on their fortunes, and the chemical works
dismantled. There are employers who pay compensation
for injuries to health in the chemical trade without any Act
of Parliament, and we have yet to be convinced that they do
not constitute the majority.

The principle is commendable, and its application in
moderation excellent, but if it is to be pushed to extremes
there is no knowing what shall constitute the *ultima thule*.
We shall perhaps have the medical profession paying com-
pensation for injury to health through an incomplete
diagnosis and subsequent treatment. Or if, as proposed,
miners are to be compensated for injury to health through
occasional exposure to poisonous gases in mines, the theatre

lessee will have to pay the doctor's bill of the "pitite" who engendered pneumonia through the heated and vitiated atmosphere of the theatre. Why even Corporations and the Government may yet have to compensate the clerks and officials whose health has been undermined by long hours, short salaries, and ceaseless worry in overworked departments, or an undermanned Local Government Board.

Whether Sir M. White Ridley and his supporters had momentary visions of such possibilities we cannot say, but in the end Mr. Tennant's proposal was rejected by a majority of 89.

THE CYANIDE GOLD RECOVERY PATENTS.

It will be remembered that the lengthy litigation which took place in 1895 over these patents ended in the owners of the MacArthur-Forrest patents being allowed to amend their claim so as to make the patent valid. This was duly accomplished in October, 1895, and was followed by steps being taken to achieve the same amendment of the Transvaal and Australian patents.

It is now well-known that in the Transvaal the attempt was unsuccessful, the patents being set aside altogether. In New South Wales, where this matter is now pending, the prospect is also not very promising, for there will be plenty of opposition to be faced from mining companies who are using cyanide without any royalty at present. Even supposing the counsel representing these opposing interests do not succeed in deterring the N.S.W. Patent Office, and the amendment is granted, there are further rumours of legal war and recourse to the highest courts for a final decision. All of which only shows what a little gold mine a patent is—for the legal profession, and how precise, equitable, and comprehensive are those inexorable statutes known as the Patent Laws.

A TEST FOR CARBON MONOXIDE.

FOR detecting this poisonous gas in the air of mines, M. A. Mermet, a French authority, finds a dilute solution of potassium permanganate, containing a little nitric acid, highly efficient, the effect being to decolorise the permanganate solution. The reaction goes on more rapidly when the solution also contains silver nitrate, one part of carbonic oxide per 500 to 5,000 parts of air decolorizing the liquid in from one to 24 hours. The reagent is prepared as follows—Silver nitrate solution: two or three grammes of silver nitrate crystals dissolved in one litre of water. Potassium permanganate solution: one litre of distilled water boiled with a few drops of pure nitric acid (free from hydrochloric acid), a little permanganate solution being added until the liquid becomes rose-coloured, in order to destroy any organic matter which may have found its way into the water, as dust, etc. When cold, one gramme of potassium permanganate crystals is dissolved in the water, and 50 cc. of nitric acid are added thereto. For use, 20 cc. of silver nitrate solution, 1 cc. of the permanganate solution, and 1 cc. of pure nitric acid are mixed together and made up to 50 cc. with distilled water freed from organic matter. The reagent must be used immediately. To collect a sample of air from the gallery of a mine, a flask is filled with pure distilled water and emptied in the gallery, the air entering the flask by displacement. When the air is dusty the flask should be fitted with a paraffined cork with two tubes, one for the outflow of the water, and the other filled with cotton-wool to filter the ingoing air. The bottle must then be closed by a glass stopper, since the organic matter in the cork would decolorise the reagent and spoil the test. A second flask being filled with normal air, some of the reagent is poured into both, and they are then placed side by side on a sheet of white paper. After some time the impure air will decolorise the liquid, whereas that in the flask of normal air will retain its original rose colour. This decoloration is more rapidly effected in proportion as the quantity of reducing gas is greater. The actual nature of the impurity can then be ascertained by ordinary methods, but sulphur, if present, reveals itself during the initial reaction by combining with the silver salt to form sulphide, which turns the reagent brown.

CHRM. FAB. RHEINIA.—This company made a profit of £87,500. In 1896, out of which a dividend of 15% has been paid, and £10,000, set aside to form a special reserve fund.

Parliamentary Jottings.

THE PARCEL POST.

In the House of Commons last week, in answer to Mr. Hen Heaton (Canterbury), Mr. Hanbury (Preston) said—Applications have been received from various quarters that the parcel post rates should cover slightly more than the even pound or pounds in order to cover the weight of wrappers. The changes in the scale of rates have been announced will to some extent meet the wishes of the member by reducing the charge on a parcel between 1lb. and 2lb. 4½d. to 4d., but it is not possible to make any further concession. The weight of the packing would, of course, vary greatly according to the nature of the articles sent, and it would be impracticable to fix a rate which would be fair to all alike.

THE LONDON WATER COMPANIES.

Mr. Chaplin introduced a Bill this week to amend the law respecting the metropolitan water companies. He explained that the new powers and duties conferred on local authorities by this Bill were very considerable, and he was in great hopes that the proposals would be to be an adequate fulfilment of the undertaking he gave earlier in the session to do something to strengthen and improve the position of the consumer, pending the report of the Royal Commission.

NON-INFLAMMABLE WOOD.

ON the site of the old Millbank Prison, a new American process rendering wood non-inflammable was submitted recently for a practical test in the presence of a number of onlookers.

For the purpose of this test two buildings had been erected in all respects, except that one was made of ordinary timber and the other of timber treated by the process whose merits were to be demonstrated. They were 11 ft. square, and including the chimney 30 ft. high, the floor being some three or four feet above the ground. The frames and coverings were of pine, the interior of ash, oak and mahogany. Equal quantities of dry timber, saturated with oil, were piled against the windward side of each, and set simultaneously. In five minutes the building of ordinary timber was alight, and in less than half an hour it had collapsed. But the building did not catch fire at all under the test. The wood, which had become charred on the surface, but it did not break into flame, it consumed except in the case of a piece of boarding, which was practically in the middle of the pile of burning timber already on fire. The resistance offered by this building may be judged from the fact that it was entered without any discomfort 20 minutes after the fire had been started, when the building of untreated timber was a flame, which could not be approached nearer than 15 or 20 yards. The building was next subjected to a further and perhaps severer test. A pile of shavings and wood, also soaked with paraffin, which had been piled inside the building while the fire was blazing outside, was ignited, and doors and windows being opened in order to create a strong draught. Though under this treatment some of the smaller pieces of wood in the construction did take fire, still the building remained intact, whole, and a box made of the treated wood, which had been placed in the interior at the beginning of the experiment, was taken out at the end with its contents quite undamaged. The process by which these results are achieved is stated to consist of the removal of the natural juices of the wood and the substitution for them of certain chemicals which are forced into the pores at a high temperature. This treatment, it is claimed, makes no substantial alteration in the physical properties of the wood, which can be worked and polished just as well as untreated material. The chemicals used do not attract moisture, are colourless, odourless, and harmless to health, and confer a lasting protection against combustion—that is, though there may be slow oxidation of the parts in actual contact with flame, the wood is not capable of supporting or conveying flame. In the United States this process is said, has already been extensively adopted. All the wood used in the construction of some 30 ships now being built for the United States Navy is required to be treated in this way, and for several Government buildings which are in course of erection timber which has undergone this treatment is to be exclusively employed.

CERBERUS WOULD NOT TAKE THE BAIT.—At a meeting of the Baptist Union at Pittsburgh, on Tuesday, the Rev. Mr. C. Baptist Missionary to China, declared that in his opinion it would be right to accept a gift of a quarter of a million dollars for the missionary cause by Mr. Rockefeller, the oil merchant, but that he would be giver has "purified" himself. The rev. gentleman referring to the methods by which Mr. Rockefeller obtained his wealth.

The Patent List.

List is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Gas, Smoke, and Foul Air Extractor. D. Williams and E. R. 11,542. May 10.
 Fuel Burners. P. M. Justice. 11,571. May 10.
 Fuel Burners. A. W. Southey. 11,585. May 10.
 Hides and Skins. G. Levinstein. 11,597. May 10.
 Tin Oxide Paste for Smelting. E. E. Von de Linde. 11,602.
 Secondary Batteries. E. Riley. 11,603. May 10.
 etc., Apparatus. A. Hubble. 11,654. May 11.
 Zinc and Silver Slags. W. Blackmore. 11,659. May 11.
 Liquids. E. Simoneton. 11,700. May 11.
 aporators. G. Williams and R. J. Waddell. 11,724. May 11.
 Manure. J. Montgomery. 11,726. May 11.
 Filter Presses. J. Williamson. 11,803. May 12.
 Machinery. T. Andrews, C. E. Monkhouse, and A. Smith. 11,824.
 and Electrolytic Decomposition Cells. G. C. Allingham and W. 11,844. May 12.
 Filter Presses. J. Hill. 11,872. May 13.
 ing Wool. O. Imray. 11,917. May 13.
 g Caoutchouc. E. J. Soutar-Arnold and W. Baines. 11,920. May 13.
 am Salts of Casein. H. Imray. 11,998. May 14.
 isting Cements. J. C. Rombach and E. S. Restieaux. 12,024. May 15.
 Extraction. F. B. Aspinall and E. C. Ekstromer. 12,074. May 15.
 ents in Tanning. C. S. Dolley. 12,099. May 15.
 ents in Burning Liquid Fuel. 12,108. May 15.

FACTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

ments in Machines for Separating and Collecting Dust from and other Gases. C. E. Mumford, St. Andrew's Works, Bury munds, and W. W. Willis, Duncombe, Burrell-street, Ipswich. Eng. Pat. June 22, 1896.

ble perforated cylinder is placed in a horizontal position in a casing. The space between the outer and inner cylinder is filled (about seven-eighths full) with grain, chopped straw, n, etc., such materials constituting the filtering medium. The is mounted on rollers, driven by belts or gearing. The inner is closed with discs attached to the framework, these discs also a deflector, running the whole length of the cylinder, which is the air currents. The dust-laden air is passed through a stationary disc into the inner cylinder, filters through the , into the outer casing, and is drawn away by a fan. In some travel of the air can be reversed with advantage. The dust y the grain, etc., gravitates to the under side of the revolving (the meshes of which are kept clear by brushes fixed at con-points), and falls through a hopper into a spiral conveyor, discharges it outside the wooden casing. There are two figures.

ments in the Manufacture of Cattle Food Cakes. F. Stacey, e Bank, Slad-road, Stroud. Eng. Pat. 1,991. January 25, 1897.

alvanised iron press plates usually used for branding feeding the cake box soon lose their surface, and not only cause the dhere to the plates, but give a faint and blurred impression of mark. A thin sheet of tin, or zinc, is therefore put between s, and swaged into a facsimile in the press. These thin e then soldered to the iron plate. In consequence, a clear, pression is always obtained, and the dull, mealy appearance of s gives place to a glossy and attractive appearance. There drawings.

and Apparatus for Purifying Crude Alcohol and other ollic Mixtures. C. Killing, 3, Griesenaustrasse, Düsseldorf. Eng. Pat. December 15, 1896.

stage is taken of the fact that if a mixture of vapours is formed aporating chamber which is sufficiently high, the proportions pours will vary according to the level from which they are F. A certain amount of crude alcohol is placed in a cylinder ith a steam coil, and fitted with an agitator. Near the top of der are openings by means of which a draught can be induced the cylinder. On heating the alcohol to 30°-40°R., not only

the aldehyde, but a certain amount of ethyl alcohol evaporates. The latter, however, condenses largely, and is practically confined to the bottom layers of vapour, while the aldehyde that finds its way to the top is drawn off by the current of air, and so separated from the alcohol. There is one figure.

Improved Ammoniacal Preparations. J. Pattison, 11, Bothwell-street, Glasgow. Eng. Pat. 23,245. October 20, 1896.

In order to render ordinary liquid ammonia less disagreeable in use as a detergent, camphor is dissolved in it. The liquid ammonia takes up sufficient at ordinary temperatures, the solution being expedited by agitation.

MINERAL OUTPUT OF CALIFORNIA.

THE State Mineralogist of California has just completed his summary of the production of the State in the year 1896. The following items are reported:—

Gold	831,251 fine oz.	\$17,181,962
Silver (coinage value, \$422,463). Commercial value		219,123
Chrome iron	786 tons ..	7,775
Mineral paint	395	5,500
Antimony	55	2,300
Manganese	318	3,400
Magnesite	1,500	11,000
Asphaltum	19,000	62,000
Marble	7,889 cu ft. ..	32,500
Sandstone	58,000	28,300
Granite	185,000	278,000
Lime	20,275 bbls. ..	152,000
Quicksilver	30,000 flks. ..	1,020,000
Copper	1,992,287 lb. ..	209,190
Lead	1,293,500	33,571
Platinum	150 oz.	2,250
Borax	13,606,890 lb. ..	680,345
Coal	69,449 tons ..	158,135
Gypsum	1,300	13,000
Petroleum	1,242,860 bbls. ..	1,242,860
Slate	500 squares ..	3,500
Cement	9,500 bls.	28,500
Bituminous rock	37,000 tons	101,750
Salt	45,300	90,600

Total value \$21,567,561

One of the features of the 1896 return is the great increase which has taken place in the production of copper, due, of course, to the enhanced prices for the metal which existed last year, and still prevail. The total yield was 1,992,287 lb., as against 225,670 lb. for 1895, the former output being about nine times larger than the latter. Nearly the whole of this yield came from mines in Shasta County, which, it is estimated, will in the current year produce more than 12,000,000 lb. The production of lead fell, the total of 1896 being 1,293,500 lb., or less by 298,900 lb., or 18·8 per cent, than in 1895.

In the minor minerals there were various changes. Antimony showed a gain; asphaltum, chrome ore, magnesite, and manganese showed decreases. The changes, however, in the majority of instances, were of comparatively slight importance. Materials used in building construction, such as lime and stone of different descriptions, mostly showed increases over the previous year—a point which seems to indicate increased local development and building activity. The table above shows that California, so far from being merely a gold country, as many suppose, is establishing a varied mineral industry which may be expected to be of the highest importance to the State in the immediate future.

STEAM BOILER LEGISLATION.—At the last meeting of the Chemical Sectional Committee of the Manchester Chamber of Commerce, held last week, the chairman and Mr. Levinstein reported the result of an interview with Sir W. H. Houldsworth, M.P., as to the bearing of the "Boiler Inspection and Registration Bill, 1897," on closed vessels, containing liquids in processes of chemical manufacture, in the course of which steam would necessarily be used under pressure. The definition of a "boiler," as appears in section 15 of the Bill is "any closed vessel which is used for generating steam or heating water, or for heating other liquids." Sir William, whose name appears at the back of the Bill, having expressed himself as only concerned to bring under the provisions of the Bill steam boilers used for generation of steam for power, had suggested that an interview should take place between the chief engineer of the Manchester Steam Users' Association (who are greatly interested in the measure) and the executive of the Chemical Section with a view to securing a united opinion. The conference will accordingly take place at an early date.

THE RUSSIAN CHEMICAL INDUSTRIES.

By P. P. FREDOTJEW.

(Concluded from p. 333.)

Nitric Acid.—This acid is produced in Russia to the extent of about 300,000 puds. The three powder works produce the largest quantity, and also the Tentelew Company produce a great deal. Chili saltpetre serves as the raw material, of which in the last few years 700,000 or 800,000 puds were imported. Of this, 120,000 or 130,000 puds are used by the sulphuric acid factories. In the manufacture of nitric acid retorts of cast iron are always used. In the district of Moscow the price of the acid of 32° B is 250 kopecks per pud, and 340 kopecks for that of 36°, without package. The nitrate of soda costs 195 to 200 kopecks per pud.

Hydrochloric Acid.—Until the abolition of the salt duty the manufacture of hydrochloric acid in Russia was only carried on in a small way. The acid was produced in glass retorts, which were broken up at the end of the process. The retorts, together with the acid sulphate which they contained, were sold to glass works. The Tentelew Company were the first to erect saltcake pots in Russia, and contributed greatly to the success of this manufacture. On this account the price of hydrochloric acid has fallen from 175 kopecks to 45 kopecks per pud. The chemical factories in Central Russia also helped to perfect the manufacture of hydrochloric acid. The sodium sulphate at first had but a little sale. The owners of the glass-works looked on the Russian product with suspicion, and preferred to use soda or to import sulphate from abroad; but since the home product was reduced to 40 kopecks per pud glass manufacturers have been inclined to pay more attention to it. At the present it has a large sale at 50 kopecks per pud. The sodium bisulphate which comes from the decomposing pots is not used, but in those factories where sulphuric acid as well as sulphate is produced, about 10 per cent. of the bisulphate is worked up in the salt charges. In Petersburg a small factory exists, which makes use of the bye product of the Araric nitric acid factory. This bye-product is furnished with salt or with peat. In the latter case a mixture of sodium sulphide and sulphate is obtained, which is bought by the paper works. The working up of bisulphate deserves the fullest attention, because Russia still imports about 150,000 to 200,000 pud of sulphate from abroad. In spite of the frequent repairs and great losses of muriatic acid gas, the Russian factories as a rule use muffle furnaces, because the hydrochloric acid (which is as valuable as the sulphate) must be produced in a pure and highly concentrated state. In the works of Messrs. Uschkow, however, where the hydrochloric acid is converted into bleaching powder, the open furnaces are used. Petroleum residues serve as fuel for the salt-cake pots. The acid resisting vessels which are used are manufactured in Russia, and the best vessels are those from the pottery works of Wachter and Co., in Borowitschi, which are quite as good as those imported from abroad. In Uschkow's works stone flues and coke towers are used for the condensation of the hydrochloric acid, the coke towers being made out of granite from the Urals, because this material resists the hot hydrochloric very well. It, however, discolours the acid, and is therefore only used at those works where the colour is of no importance, since the acid is only used for making bleach.

The best part of the hydrochloric acid which is produced in Russia is used for the production of chloride of zinc for impregnating railway sleepers. Since the reduction in the price of hydrochloric acid, it has also been used for dissolving bones, and for the production of acetic acid.

Lately, the bleaching works have used hydrochloric acid instead of sulphuric acid for the treatment of the cotton, because the deposited sulphate of lime proved troublesome in the dyeing process.

The manufacture of hydrochloric acid and of nitric acid has now developed to such an extent that the import has fallen from 600,000 pud (1890) to 19,000 pud (1894). The factories of Tentelew alone produce over 300,000 pud of hydrochloric acid and about 210,000 pud of sulphate annually. Of the first-named product a portion is used by the said factory for the purpose of producing about 50,000 pud of chloride of zinc. Uschkow and Co. produce about 700,000 pud of sulphate, and of 20° B. hydrochloric acid about 1,000,000 pud; but only about 300,000 pud of the first-named and about 50,000 pud of the last-named product are sold, the remainder being used at the works for the production of soda and bleaching powder. From 50,000 pud to 150,000 pud of hydrochloric acid are produced by the other factories of Russia. In Moscow the price of 10° B. acid is 80 to 85 kopecks, and that of 20° B. 95 kopecks per pud.

Bleaching powder is produced at present by Uschkow and Co. only. This firm produces about 300,000 pud yearly by the Weldon process. Manganese, with a proportion of 88% to 93% MnO₂, comes from the Caucasus, and costs, in consequence of the high price of transport, about 80 kopecks per pud. Manganese from the Urals costs only about 40 kopecks per pud, but contains only about 60% MnO₂. The bleaching powder manufactured by Uschkow and Co. sells well in the district of

Moscow, in spite of the English and French competition. The production tests 36.5% of available chlorine; the summer product a lower grade, and more easily decomposed. In consequence of keen competition, the price of bleaching powder has fallen from 3 roubles to 2 roubles 60 kopecks per pud. At the present there is in the South of Russia a factory in course of construction which intends to produce bleaching powder by an electrolytic process.

In spite of many attempts, the soda industry in Russia could not get any headway until the abolition of the salt duty. The introduction of a duty of 55 gold kopecks for each pud of soda and 90 gold kopecks for each pud of caustic soda, was chiefly instrumental in raising the industry. As early as 1883, Lubimow erected a soda factory at Berezinaki (Gov. Perm), and although salt and fuel were cheap, the limestone pure, his supplies of ammonia were short. Moreover, he could only ship his products when the River Kama was open for navigation. But as soon as Lubimow, Solay, and Co., Limited, took over the work the business increased considerably, and about 700 pud of soda were produced in 1887. After the introduction of a new duty, this firm erected a second ammonia soda factory at Bachmut district (Gov. Ekaterinoslaw), and, because this new factory was situated much nearer to the centres of consumption, the production increased rapidly. In 1895, the two factories of this company produced 2,924,664 pud of soda and caustic soda, the latter by Löwig's process.

Caustic soda is also produced by Uschkow's, this firm combined the manufacture of caustic soda with its other products. At first Mr. Uschkow tried to reduce the cost of producing soda by the Leblanc process. He endeavoured to find new pyrites mines in the Urals, to improve roasting furnaces, and modified the chamber system of towers. Directly after the abolition of the salt duty Mr. Uschkow ordered a plant for a caustic soda factory after the Leblanc process, but the manufacture only succeeded after the last increase of the salt duty. Ever since 1891 Mr. Uschkow has produced about 200,000 pud of caustic soda yearly. In all probability the manufacture of soda in Russia will increase more and more. At the same rate the home product grows, so does the rate of the import of foreign soda diminish. Only 414,000 pud of soda and 385,000 pud of caustic soda were imported in 1895. In Baku about 120,000 pud caustic soda is yearly produced through regeneration of the soda, which is refined from petroleum. Baku altogether is a most favourable place for the existence of Leblanc soda factories, because fuel, salt, Glauber's sulphuric acid are all very cheap there. Moreover, as Baku is in close proximity to the centres of consumption, liquid caustic soda can be sent instead of the solid product. The whole demand for soda in Baku is about 400,000 pud yearly. In addition to the Leblanc soda factory which already exists, being owned by T. and Co., the firm of Nobel Brothers will open another one in a short time. The price of 98% ammonia soda in Moscow fluctuates lately between 175 and 195 kopecks. The only influence upon the market is the competition of the English factories, because the English and Continental factories are united through a syndicate. The price of caustic soda in Petersburg is 240 to 250 kopecks per pud. On the other hand, in Moscow the fluctuations of the price are greater, and times the price drops from 280 to 270 kopecks per pud. The St. Leblanc soda factory in Barnaul produces yearly about 25,000 pud caustic soda and sells it at 3 roubles per pud at the works, and 80 kopecks per pud in Tomsk.

The manufacture of **alum** has existed in Russia since about 1850. The clay and Caucasian alum stone served as raw material, but at the present time bauxite is mostly used. For some time Mr. Uschkow used to produce the alum from Krasnonfimsk. This clay contains 34% of alumina, 1.5 to 3% of peroxide of iron, and 59 to 61% of silica. The clay was decomposed with chamber acid, and the iron removed by Spence's process; but the costliness of this process and the inferior results obtained compelled the factory to give up working the clay and to make use of bauxite, which, although rather rich in peroxide of iron, contains very little silica. At present the Tentelew Company produces about 300,000 pud and Uschkow about 200,000 pud of pure alum sulphate yearly. The other Russian factories produce for the most part ferruginous aluminium sulphate.

Chromates.—The working up of chrome ironstone has been going on in Russia ever since 1850. The Uschkow works produce about 60,000 pud of potassium chromate and several thousand pud of chrome alum. The price of potassium bichromate in Moscow is 850 kopecks. Chrome alum costs about 425 to 435 kopecks, and ordinary crystal alum is sold at 140 kopecks.

Potashes, etc.—Formerly Russia possessed a dried blood industry, but this industry has now died out. The production of potash from vegetable ashes has also decreased. At present Russia produces principally crude potashes, which contain 12% to 14% of potassium chloride. The prices vary according to the supplies of vegetation from which the potash is extracted. In Saratow the price of potash is 160 kopecks per pud, in barrels; in St. Petersburg the

225 kopecks per pud. The manufacture of saltpetre has lost since the introduction of the smokeless powder.

Ammonia.—The ammoniacal water from gasworks forms the resource for ammonia salts. All the ammoniacal water of works in St. Petersburg is contracted for by Lubimow, Selay, who again sell part of it to the Tentelew factory. The of the concentrated ammonia goes in barrels to Rybinsk, and to Berezniki by ship. The soda factory in Bachmut certain amount of ammonium sulphate from England. The ammonia and of ammoniacal salt in 1895 amounted to d.

Copper Sulphates.—These are also produced in Russia, little sulphate of zinc. Blue vitriol is produced mostly from pyrites. The blue vitriol, produced from the spent pyrites, contains iron. In consequence of the reduction of the duty railway tariff, this manufacture is less lucrative. In Moscow of Russian blue vitriol is 380 to 390 kopecks, and for the which contains but a very little iron, 400 kopecks per pud. There were imported about 83,000 pud of blue vitriol and of zinc.

Acetic Acid.—The chemical works, which lie in the neighbourhood of Moscow, and calico-printing works, carry on in a small way the manufacture of acetate of lead and also of stannic salts. Since 1890 a quantity of sodium nitrite has been sold at 11 to 12 roubles per pud. Several other firms also produce tartar emetic from imported lithium bisulphate, silicate of soda, chemically pure acids, and other chemical products.

The improvement of the Russian chemical industry is greatly hindered by high import duties, although these have made sulphuric acid more accessible. As far as Russia becoming an independent centre in the chemical industry is concerned, it is impossible to say anything until the mineral wealth of the country has been further explored. Suitable freight tariffs would greatly assist this enterprise. —*Zeit. f. Angw. Chem.*

THE COMMERCIAL USES OF OZONE.

In the course of a paper on the commercial production and applications of ozone, Mr. E. Andreoli recently gave an account of his experiments with ozonisers, some particulars of which have already appeared in these columns. He also contributed some information as to the present and probable future uses of this product. In so doing he gave round figures, 1 kilo. of ozone is the theoretical quantity which would require the expenditure of one electrical horse-power-hour, but there is a wide difference between theory and practice. We have never yet obtained more than 50 grms. per electrical horse-power-hour, and we know of no ozoniser which will give in continuous work 35 grms. per horse-power-hour, of course, refers to large ozone generators, and not to the laboratory apparatus in which a high percentage of ozone is obtained and through which pure oxygen is sent after having been brought down to a low temperature. The qualities of a good ozoniser are durability, easy construction, and efficiency. The continuous generation also entails precautions for avoiding the heat which is evolved in the silent discharge generates.

ITS APPLICATIONS.

As regards the employment of ozone to the manufacture of aerated waters, there are two points to be considered—the absorption of ozone by water, and the formation of carbon monoxide by the silent discharge. The latter may not be found to be so noxious as would be supposed.

Grübler has stated that below a certain point of dilution, say 1:100, this gas ceases to be dangerous, and it appears that below this point carbon monoxide, when it finds its way into the human body, is converted into carboxyhaemoglobin into oxyhaemoglobin. On the other hand, as Dr. Lewski, in a letter dated 1896, said, that because of the low solubility of oxide of carbon in water, it is probable that the solution is harmless, and he added that ozonised carbonic acid could be used for drinking water if when leaving the ozonisers it was forced through a chromic acid solution, which would convert the oxide of carbon formed into carbonic acid. The real difficulty is that ozone does not readily dissolve in water, and that in contact with the metal of the cylinder through which it is forced, it decomposes. The sole result in this case is that a little more oxygen in the water than there was before.

The industrial application of ozone at the present day, which is limited, that is to say, real profits, and I may add, substantial ones, is in the manufacture of certain artificial perfumes.

As every one knows that ozone can be utilised for making "dégras," which is an indispensable substance in the leather trade. Oxidised fish-oil, mixed or not with animal oils, gives an "article," which is cheaper than genuine "dégras" and has all its properties. For "dégras" as for most other applications it is not enough to force ozone into the substance to be oxidised, but conditions to be fulfilled which the manufacturers only know, and which is a limit to oxidation which must not be overstepped.

It is preferable to ozonise wood for making musical instruments, instead of drying it by the traditional method, which consists in keeping it for a long time in sheds. The sounding-boards of pianos have then a great sonority, and resist variations of temperature better, which is important for exportation. Woods for cabinet and carriage making when seasoned by ozone have a more pleasing appearance; their tint is softer, and they take varnish much better.

There are in Germany two factories where Messrs. Siemens and Halske two or three years ago introduced ozone. In one of them they bleach linen cloth and yarns, and in the other starch and amylaceous products are bleached and refined. In Greifenberg (Silesia), fabrics and yarns are bleached; the starch works are at Kyritz, but ozone is not employed singly. Decolorisation by ozone alone is a myth; Messrs. Siemens, by alternate passages through hypochlorite of calcium and ozone, bleach well and cheaply. It is what we may call chlorozone bleaching, had not this term been already adopted.

We also wished to subject to an ozone treatment the starch manufactured in this country; but when we applied to manufacturers, they told us that they only make rice starch, which is white, and that bleaching is not required. I will add that the ozonised products of Messrs. Siemens are quoted much higher than ordinary starch, leigum, and dextrin. In vinegar works there ought to be a great advantage in adopting the ozonisation of the wash.

We made numerous attempts to decolorise molasses, syrups, and moist sugar, but they were not crowned with any brilliant success. Firstly, the action is slow, and consequently the bleaching, which is never very marked, is expensive.

In the case of drying oils, it is very desirable to render them paler and transparent for the manufacture of varnish and for their other uses. There is no need to alter the plant for oil-drying or linoleum works, or for any other oil or fat works where oxidation has to be replaced by ozonisation. Wherever there are installations for forcing or aspirating air through fatty masses, you have simply to run this air through one or several ozone generators, whence in an ozonised condition it may pass into your receivers, where it does more work than blown air.

Ozone has shown its value as a bactericide and germicide. An installation is being constructed at present near Paris for sterilising water from the Seine, by means of the Tindal and Van der Sleen apparatus. The Municipal Council of Paris has granted a concession for the daily disinfection during three months of a certain quantity of water—a concession which will be made permanent if conditions of efficiency and economy are realised. It is estimated that the sterilisation of 5,000 litres of Seine water requires one electric horse-power-hour. The practicability of the sterilisation of water depends on the quantity of ozone available per horse power-hour. With only 10 or 12 grms. of ozone it is evident that there is little chance to economically purify contaminated water. But here we have the starting point, which is the deadly action of ozone on bacilli and even spores.

It is amusing to review the host of ingenious combinations which have been contrived in order to sell under the name of ozone medicaments, beverages, disinfectants, and panaceas, in which ozone plays a very small part, or none whatever. If people understood how little ozone is retained by water and liquids, there would be fewer persons attracted by the grand alluring name of ozone spread out on labels. Pseudo-ozone seems to be more in demand and pay better than genuine ozone.

ANSWERS TO CORRESPONDENTS.

H.F.—(1.) We are not able to give advice on such points. (2.) You can get them from Somerset House on payment of a reasonable fee.

MUREX.—There are two or three advertised in the columns of the various trade journals, and there is yet another product about to be put on the market which we think will take most of the gilt off that kind of gingerbread.

SIMPLEX.—Perhaps your *nom de plume* is satirical? If not, you had better try it yourself; you will then doubtless know just as much about it as we could tell you; in fact you will know all about it then.

QUERY.

A correspondent asks us for the names of makers of acid potassium sulphate.

PERSONAL.—Dr. Henry Alleyne Nicholson, professor of natural history in Aberdeen University, has been selected by the council for election to the Fellowship of the Royal Society of London. Professor Nicholson succeeded Professor Cossar Ewart in the chair of natural history at Aberdeen in 1882, and has contributed largely to scientific research and literature.

CHEMISTS' SALARIES UNDER THE L.C.C.—At a recent London County Council meeting, the Establishment Committee submitted its estimate for the Chemical Department for the year as £3,255, being an increase of £150. over that of the past year, and made up as follows:—The Chemist, £800.; 2 senior assistants at £350., £700.; 2 assistants, first class (at £300. and £245.), £545.; 4 assistants, second class (ranging from £175. to £200.), £750.; 1 assistant, third class, £150.; 1 assistant, fourth class, £100.; 1 temporary assistant at £1. 15s., £91.; 1 messenger at £1. 6s., £67. 12s.; 1 laboratory attendant at 18s., £46. 16s.

THE SNAEFELL INQUIRY.

THE adjourned inquest on the 19 victims of the Snaefell disaster was held on Tuesday, at Laxey. The 20th body, that of Robert Kelly, has not yet been recovered. Mr. S. Harris, of Douglas, conducted the inquiry, and both the Snaefell Company and the relatives of the victims were represented by counsel. Dr. Foster, inspector of mines, was present, also Inspector Williams, who has played such a prominent part in connection with the rescue operations. Great interest was taken in the proceedings.

Captain Reddcliffe, consulting engineer, was the first witness. He described the condition of the mine as a result of his latest inspection a week previous to the disaster. He said the ventilation was good as far as he could see. It was rarely carbon monoxide was found in lead mines, and he would have expected to find very little in the Snaefell Mine. He described the condition of the levels and the precautions taken for the safety of the miners.

Dr. Le Neve Foster was then called and gave important evidence, stating that he came to the island as soon as he could on hearing of the disaster. On the morning of the 13th inst. he made some experiments upon the air of the mine by lowering candles and mice down the shaft. He found candles would burn and mice would live as far as the 115 fathoms level, and that the candles went out and a mouse was badly affected when lowered to the 130 fathoms level. A mouse was killed and sent by post to the Home Office. The Secretary of State sent the mouse to Dr. John Haldane, of Oxford, who was the greatest authority upon poisoning by carbon monoxide. He wrote to witness on the 19th, saying that the mouse lowered to the 130 fathoms level had been exposed to carbonic oxide, which was another name for carbon monoxide. Dr. Haldane stated that the blood was 80 per cent. saturated, and the mouse must have been nearly dead when drawn up from the mine. That confirmed what Dr. Milner said originally. They could go a step further, and get additional confirmation of the presence of carbon monoxide. On Wednesday, the 12th, Mr. Williams took samples of the air a little above the 130 fathoms level, and nearly lost his life in so doing. These samples were sent by witness to the Home Office, and were sent by the Secretary of State to Dr. Haldane. Witness had received from Dr. Haldane the result of his analysis, which was as follows:—Bottle No. 1—Oxygen 15.48 per cent.; carbon dioxide, 4.22 per cent.; carbon monoxide, 1.07; hydrogen, 0.48; nitrogen, 78.75. Dr. Haldane's opinion was that the quantity of carbon monoxide in the sample was quite enough to account for the loss of lives. The second bottle gave results almost identical. Dr. Haldane added: "I do not quite understand how you succeeded in obtaining a specimen of such an exceedingly poisonous stuff." They had now got undoubted evidence of the cause of death. As to how the gas came to be in the mine was so far a matter for speculation, and he would not like to give any opinion (though he might have an opinion in his mind) till an opportunity had been given for full examination. The gas that did the damage was not a gas that was ordinarily found in mines, not occurring in nature, and we had to look for some artificial source of the gas. Some years ago he had occasion to find fault with the ventilation of the mine, but that was remedied in 1885. As to the mine not clearing itself now he was entirely in the dark, and it could only be cleared up by an actual examination of the mine.

Mr. Kneen said the mine authorities were desirous that the mine should be examined at the earliest possible opportunity.

Mr. Cruickshank.—The question of whether a door was open or closed ought to be cleared up by an independent person.

Mr. Kneen said the mining authorities were desirous that the first person to go down should be a Government inspector.

Dr. Foster said it would not be safe for anyone to go down till the fan was in operation.

Inspector Williams said he examined the mine on the Friday before the accident, and found the levels very clear. He remarked to some of the men at the 158 level how good the air was, and he reported the ventilation as very good on that day. He did not go in the mine again till after the accident. Witness made an inspection of every working place under ground, and was down the mine four hours. Everything was in perfect order with the exception of one or two minor things about which he complained to Captain Kewley. Witness detailed the exciting proceedings connected with the recovery of the bodies. Three bodies were brought to the surface on the Monday evening, ten on the Tuesday, and five on the Wednesday. Some of them were found clinging to the ladders, but not one of them seemed to have struggled, but to have had a peaceful death. He described how he secured the samples of air for test purposes sent to Dr. Haldane, the narrow escape he had of losing his life, and how he was saved by Mr. Jones and brought to the surface for dead.

The Coroner complimented witness on the bravery he had shown throughout, and said that if ever a man deserved a medal Mr. Williams did.

Thomas Uglow, one of the miners who descended the mine to work

on the morning of the disaster, deposed that he met men returning they told him the mine was on fire. He noticed a thick blue smoke but it did not smell as from burning wood. He thought it was a that came from the earth. He had observed similar gas when working in the Cleveland iron mines, Yorkshire. He had never any reason to complain of the ventilation of the mine.

At this stage the inquiry was adjourned to enable Dr. Foster to thoroughly examine and discover the source of the poisonous gas.

Reports of Companies.

MESSRS. BRUNNER, MOND AND CO., LTD.

THE ordinary general meeting of the shareholders of this company was held on Tuesday, at the Law Association Rooms, 15, Bedford street, Liverpool, Sir John T. Brunner, Bart., M.P., presiding. The report of the directors was as follows:—The balance sheet and loss account, certified by the auditors, and now presented, a balance to the credit of profit and loss account on the working nine months ended on the 31st March, 1897, of £232,910. 15s. 6d. which, with the amount of £95,943 14s. 9d. brought forward June half-year, 1896, makes a total of £328,854. 10s. 6d. The directors propose to deal with the above balance as follows:—

	£	s.	d.	£
Interim half-yearly dividend on the preference capital at 7 per cent. per annum, paid on the 27th February, 1897	19,393	16	8	
Dividend to be now paid on the preference capital at 7 per cent. per annum	10,289	5	0	29,683.
Interim half-yearly dividend on the ordinary capital at 25s. per fully-paid share, and 7s. per partly-paid share, paid on the 27th February, 1897 ..	95,084	1	0	
Dividend to be now paid on the ordinary capital at 25s. per fully-paid share, and 8s. 9d. per partly-paid share, making 30 per cent. per annum for the nine months	118,855	1	3	213,939.
Amount to be written off patents account				500.
Balance to be carried forward				84,732.
				£328,854.

The Chairman proposed the adoption of the report and statement of accounts, and that the following dividends for the nine months ending 31st March be paid to the holders of shares, namely, to the holders of preference shares 7 per cent., and to the holders of ordinary shares the rate of 30 per cent. per annum, less the interim dividend in cash paid on the 27th February, 1897. It was, he said, a very satisfactory result to their directors that they had been able to send out to shareholders a balance-sheet of the character they had recently received. When they took into account the state of business which had obtained in the United States during this time the result was a very remarkable one. There had been

NEW COMPETITORS IN THE TRADE

there who had forced their way into the market apparently without consideration of where the market prices would go, and the result had been that in the United States alkali had been sold at a lower price than had ever been reached during his (the speaker's) experience of the market. He trusted that the result, viz., that they were able to offer to shareholders a dividend of 30 per cent., would be a satisfactory proof of the resource of strength of this company and its management. Sir then dealt in detail with the various items of the balance-sheet. Mentioning in the first place the item under the head of property assets of freehold land, houses, waterworks, brine shafts, gas stations, salt works, and leasehold mines, he remarked that the latter had appeared there for the first time. They had during the period of nine months in review bought three mining leases in North Wales—which he might call zinc mines, although they also produced lead.

UTILIZING RESIDUALS.

He intimated that by Dr. Carl Höffner's process, which they had adopted on terms which were considered satisfactory, they would be able to make use of waste residuum liquor which they had not hitherto been able to utilize. The mines also were very favourably situated for supplying their works at Winnington. Naturally they expected to obtain from these mines suitable ores at a price considerably below what they would have to pay for such ores in the open market. The item showed an addition of £96,635. This large amount of

spent in three directions; firstly, in the plant necessary for process; secondly, in entirely remodelling the works they in the year 1895; and, thirdly, on other necessary expenses which they carried on mainly at Winnington, and of which they did not think they had heard a word, but which contributed to a considerable degree. He ought to tell them the place—although the matter was notorious—that they had completed the purchase of the works belonging to the Cheshire Salt Company at Middlewich; and, in addition to that, they were shortly completing the purchase of Messrs. Bell Bros. at Middlesbrough. In addition to these works, they had a very considerable freehold estate and very valuable salt. The situation had excellent shipping facilities, and was a valuable one for the manufacture of ammonia soda. These works were looked upon as advisable for the consolidation and strengthening of the position of the company. On the other side of the coin they would see an increase in the nominal capital, and also a considerable increase in the reserve fund, which had risen from £460,000 to £500,000 in the nine months. The £18,658 which they ordered to be placed to the reserve fund last August was part of it; but the £7,000 premium upon a number of preference shares had been issued during the nine months, and of a premium of 10s. per share on other preference shares which were at present called up. There was, therefore, to go to the company upon the reserve fund, under the arrangements which had been made to them, a further amount of £3,10s. per share on the whole of the last issue of 20,000 preference shares, and a small number which were not bought up to the extent of 10,000 on the 31st March, although most of the money was received afterwards. After describing the difference between a full and an interim dividend, Sir John said that he wanted them to understand that this dividend they were to receive was the full dividend for nine months, less an interim dividend which they received last December; further, that the first week next December they would receive an interim dividend. But he warned them beforehand that if the directors paid an interim dividend they assured themselves they were not paying more than had been earned during the previous months, and would keep themselves on the safe side, so that the interim dividend payable next December might be, perhaps, lower than the full dividend to be paid in June, 1898.

J. Galloway seconded the adoption of the motion, which was unanimously adopted. Following retiring directors were re-elected:—Mr. Harry Coghill, Mr. Gustav Jarmay, and Mr. Edward Milner; and Messrs. Van der Straeten, of Solvay and Cie, Brussels; Mr. Hugh Bell, of Bell Bros., Limited, Middlesbrough; and Mr. Robert Mond, M. A., son of Dr. Mond, were unanimously elected as directors. Messrs. T. W. Read and Co. were re-appointed as auditors, and the proceedings concluded with a hearty vote of thanks to the management, which was carried with acclamation.

J. C. & J. FIELD, LTD.

The directors, in their report for the year ended March 31st last, state that the profits made during the year show an increase over those of the preceding year, and, after providing for repairs and depreciation of machinery, amount to £24,292. After deducting interest accrued on the debentures, income-tax, managing director's salaries, trustees', and auditors' fees, and expenses of secretary's office, there remains a net profit of £19,510, to which has to be added £591 brought forward from the last account, making a disposition of £20,101. Out of this sum the board recommends payment of a dividend of 5% on the ordinary shares, free of income-tax, £7,000 off goodwill, trade-marks, etc., placing £1,500 to the reserve fund, and carrying forward £1,028.

PRIMITIVA NITRATE CO., LTD.

The directors' report for the twelve months ended December 31st last shows a net profit of £3,540. This sum would in the ordinary course be available for dividend; but, having in mind the low prices for nitrate, the unsatisfactory condition of the industry, and the necessity of cash for working the oficina economically, the directors do not consider it desirable to part with any of the resources of the company at present. The directors have issued a notice calling an extraordinary meeting of the shareholders at which it is proposed to pass a resolution altering the company's articles of association by expunging therefrom so much of the 13th article as authorises the company to reduce its capital. The reason for this is owing to the fact that the Chilean authorities have registered the company on the express condition that this power is withdrawn, as they say, in contravention of their laws.

SAN SEBASTIAN NITRATE CO., LTD.

The net profit of the San Sebastian Nitrate Company for the year 1896 amounts to £1,605, to which must be added £3,593 brought in from the previous year, making in all £5,199, out of which an interim dividend of 2s. per share was paid on 16th July, leaving £2,324, which the directors propose to carry forward. The year under review has proved most disappointing. Although the Nitrate Combination for the restriction of production to an amount equivalent to the estimated annual consumption was in force for nine months out of the twelve, no results commensurate with the sacrifices entailed were obtained, prices not responding to the hopeful anticipations generally entertained by producers. In order to comply with the terms of the "Convenio," work at Sacramento was restricted to a period of a little over four months, the Oficina consequently being shut down for the greater portion of the year. This entailed an expense which has seriously trenchoned on the profits.

SAN DONATO NITRATE CO., LTD.

The directors, in their report for the twelve months ended December 31st last, state that the profit and loss account shows a nett balance of £230, and adding the balance from last account there is a sum of £15,937, less the amount of claim against the Chilean Government for stores, provisions, &c., destroyed and stolen during the riots in July, 1890 (irrecoverable), £5,816, leaving a balance to the credit of profit and loss account of £10,120, which the directors propose to carry forward to next account. During the year the oficina only worked five months. From January to March, 1896, work was suspended on account of the low prices then ruling for nitrate, and also during July, August, November, and December, in compliance with the rules of the combination, the oficina having made in the five remaining months of the year the whole of the quota allotted to the company. In view of the small profit shown, due to the exceptional disadvantages under which the oficina has had to work, the directors are unable to recommend the payment of a dividend. The stock of nitrate unsold and the iodine stocks have been valued at cost price.

Legal Intelligence.

HOUSE OF LORDS.

(Before Lord Herschell, Lord Watson, Lord Macnaghten, Lord Morris, and Lord Davey.)

DEAKIN V. THE SALT UNION (LIMITED).

Judgment was delivered on Monday in the above Court in this important case, which was an appeal from a judgment of the Court of Appeal varying an order of the Queen's Bench Division. The action was brought by Mr. John Buckley Deakin, trading as Deakin Brothers, against the Salt Union for £50,000 for breach of contract. The Salt Union was formed in 1888 for the purpose of purchasing existing salt works and carrying on the business of manufacturing salt. Messrs. Deakin were at that time trading in Cheshire as salt manufacturers. The scheme of the Union was to take over the business of manufacturing salt from Deakin's and other firms, but to leave to these firms the commercial part of the business. The firms bought up were to continue to deal with their old customers as distributors for the Salt Union. By agreement it was arranged that the Union should supply the plaintiffs with salt at the same price that they supplied it to other distributors, and for several years subsequently they sold large quantities of it to the plaintiffs at stated prices. Messrs. Deakin, having ascertained that the respondents were supplying salt to another firm at lower prices than they were charging them, brought the present action. The matter was referred to an official referee, who decided in favour of the plaintiffs, but only gave them nominal damages. The plaintiffs then appealed to the Divisional Court, who sent the matter back to the referee, holding that the plaintiffs were entitled to substantial damages on part of their claim. The Court of Appeal, by a majority, varied the order of the Court below, being of opinion that as they had suffered no substantial injury by the defendants' conduct, the plaintiffs were only entitled to nominal damages. From this decision the appellants appealed.—Their Lordships now delivered judgment in favour of the respondents, being of opinion that the appellants were entitled to nominal damages only. Consequently the judgment appealed from was affirmed, and the appeal dismissed, with costs.

ENGLISH RAILS FOR MEXICO.—Messrs. Charles Cammell and Co., of Sheffield, Derwent Iron and Steel Works, Workington, and Solway Hematite Iron Works, Maryport, have received an order for 10,000 tons of 70lb. rails for the construction of the Mexico, Cuernavaca, and Pacific Railroad. American railmakers tendered, but the British make was preferred.

CHEMICAL INDUSTRIES IN JAVA.

Fertilizers.—Sulphate of ammonia, which is now regarded as almost essential for the manuring of cane-fields, has been imported in considerable quantities, not only from Europe, but also from Australia, whilst bean-cake from British-India and China, and nitrate for the first time from the West Coast of South America direct, cotton seed-cake, dried blood, and other similar substances are gradually becoming more and more extensively used for the same purposes.

Soap Manufacture.—The comparatively young Chinese soap industry is flourishing in Mid-Java, and progressing in the west end of the Island.

The native consumption is increasing, whilst shipments of English make, in which a considerable business was done in former years, greatly diminished in 1896, it being impossible to sell the latter soap to advantage at anything near the low prices at which the native-made article can be produced. The latter, although of inferior quality, appears to sufficiently suit the native requirements.

Two or three manufactories have recently been started in Batavia under European management, which have met with a fair measure of success. Besides making the usual washing, they also produce toilet soaps.

Petroleum.—It is self-evident that Java petroleum is daily becoming a more important factor in the market, and it gives promise of taking the place within a few years of the brands now imported, despite the fact that its quality is still inferior. The price of the local oil is generally 40 c. per case below Russian.

The following table shows the import of foreign oil into Java during 1896, and estimates of the consumption of the local manufacture for that year:—

	Quantity.
	Cases.
American	1,678,682
Russian	731,951
Langkat	330,652
	2,741,285
Java oil, Wonokromo	607,003
„ Blora	593,997
Total	3,942,285

CHEMICAL INDUSTRIES IN THE IONIAN ISLES.

CORFU AND ZANTE.

Soap.—There is an excess of about £2,000. perceptible in the value of soap exported in 1896 compared to the year before. The making of soap is of vast importance to the trade of Corfu, the average quantity annually exported is estimated at from 9,000 to 15,000 cases; it is mostly sent to continental Greece, Albania, Epirus, and other Turkish provinces, as well as throughout the Levant. Olive oil, wine and soap are the chief productions of this island.

Green Oil.—In this connection pyrene oil, as known to the trade, may be mentioned as a native industry, the making of which is carried on by two firms of soap boilers, and is used in the manufacture of soap. It is made from the residue of the olives after the extraction of the pure oil. The process, briefly stated, consists in subjecting this residue to the action of sulphuric acid at a high temperature. A given quantity is enclosed in an air-tight cylinder, communicating with a second, similarly air-tight. Through the first the acid is forced from a reservoir, and carries along with it into the second whatever oil may be disengaged by its action, and on cooling, the oil is carefully skimmed from the surface. It is of a greenish hue, and is fit for no other purpose than that mentioned.

This manufacture is also carried on in Zante, where the present price for the oil is £23. 10s. per tun, f.o.b., and that of the soap made from it, £24. to £30. per ton, according to quality, of which latter 700 tons were exported, and that of the olive-oil soap about 1,412 tons, against 1,265 tons in 1895.

Articles of native industry competing with foreign imports are, as a matter of course, protected by heavy duties. These are principally stearine and stearine candles. There are, however, many articles not found in the country which are heavily taxed, being looked on as superfluities, or articles of luxury, such as silk, perfumery, toilet soap. The tanneries only produce an inferior sort of leather, which supplies the wants of the country people. Pottery is of a very primitive description, and bricks and tiles for building and roofing purposes are made from a greyish clay, which is mixed with sand. Neither will stand much wear, and not being impervious to damp, external walls have to be stuccoed.

Trade Notes.

FATAL EXPLOSIONS.—Shortly after six o'clock on Monday morning two violent explosions, by which four persons were killed, occurred at Krummel, near Geesthacht, Germany, on the premises of the Dynamite Company, formerly belonging to Messrs. Alfred Nobel and Company.

THE PATENT OFFICE EXTENSION BILL.—This Bill came before a second committee of the House of Commons, also presided over by Mr. Akers Douglas, First Commissioner of Works, on Friday week. There was no opposition to the measure. It was passed through committee, subject to very small verbal amendment, and ordered to be reported to the House.

SCALDED IN BRINE.—On Monday, a salt boiler named Edward Davis fell into a boiling salt pan on the Bostock Works of the Salt Union at Winsford, and was severely scalded all over his body. Fortunately he managed to keep his head out of the brine. His injuries, however, are so serious that he now lies in a critical condition at his home, where he was conveyed by Superintendent Heathcote and other members of the St. John Ambulance Brigade.

N. E. RAILWAY, HOLIDAY GUIDE.—The North Eastern Railway Company have issued a neat Guide containing particulars of Farmhouse, Hotel, Seaside and Country Lodgings to be obtained during the holiday season, in Northumberland, Cumberland, Westmorland, Durham and Yorkshire. The book, which contains a capital introduction describing all the principal tourist resorts in the North Eastern District of England, as well as a number of well executed illustrations of places of interest on the North Eastern Railway, can be obtained free on application to the Superintendent of the Line, North Eastern Railway, York; the station masters at any of the Company's stations; or will be sent to any address, post free, 2d. It may also be obtained at the Railway Book-stalls at any of the Company's Stations, price 1d.

THE RESIN MARKET.—During the past month the market has been dull, with very little business in progress. Pales, however, after a decline in price, caused, it is stated, by excessive competition amongst sellers and too great a desire to secure new crop orders, have smartly advanced again. Medium qualities have maintained their position, while common resin has declined slightly. The market seems unsettled for the time being. In London business is not brisk; the new crop trade has, it is said, practically all been done, and buyers have had the best of it, having secured supplies which could not be repeated at the prices paid. In Liverpool there has been a fair amount of business in all grades for "forward" shipment, and the market is firmer all round than it has been.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are firmer, 90's now being quoted 1s. 7d. to 1s. 7½d., and 50/90's 1s. 11d. to 2s. Carbolic acids are quiet, and prices rather easier: 60% crude is quoted 2s. 4d., 40% crystals 7½d., and liquid 1s. 1d. Naphthas are much the same as last week, with crude at 11d., and solvent 1s. 8d. Creosote steady. Anthracene quiet. Pitch is very lifeless, at 18s. to 22s. f.o.b., East Coast.

Sulphate of ammonia continues much the same both as regards prices and position. There is a moderate demand for prompt, but the forward market is a blank. In fact there scarcely is a market. Values are:—Beckton £7. 6s. 3d., London outside makes £7. 8s. 9d. to £7. 10s., Liverpool £7. 13s. 9d. to £7. 15s., Hull £7. 10s., and Leith £7. 10s. to £7. 12s. 6d.

MISCELLANEOUS CHEMICAL MARKET.

There is no material alteration in the condition of the market for alkalis. Export demand still continues fairly good for all the main products, and prices all round are steady. Bleaching powder in good request at £6. 12s. 6d. to £6. 15s., f.o.b., and £6. 5s. to £6. 7s. 6d., f.o.r. A slightly lower quotation has been given out during the week for the new electrolytic product, but, as the quantity is small, the market is not materially affected thereby. Caustic soda remains steady at prices which have been ruling for some time past, viz.:—F.o.b. Liverpool, 77%, £9. ; 74%, £8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d., 10-ton lots and upwards. Ammonia alkali, 58%, strong at price fixed by the combined makers, viz., £3. 17s. 6d., f.o.r., and about same price f.o.b., with usual variations according to market. Soda crystals and bicarbonate of soda firm, but unchanged in price. Recovered sulphur, £4. 12s. 6d. to £4. 15s., f.o.r., and in good demand thereat. Chlorates of potash and soda, 4d. and 4½d. per lb. respectively. Sulphate of copper quiet at £16. 5s., f.o.b. Saltcake is firm at 19s. to 20s., f.o.r. White powdered arsenic in better request,

steady at £22. 15s. to £23. f.o.r. Garston. For potash, carbonate, general demand continues active, and prices are maintained. Brown acetate of lime steady at £4. 15s. to £5. stocks are smaller; grey, £7. 5s. to £7. 10s., c.i.f. Sugars quiet, with slightly lower tendency. Other acetates dull, ammonia still offering at £17. 10s. to £18. f.o.r. Other salts quiet, and values unchanged. Yellow prussiate of potash at 5½d. per lb. Cyanide, 10½d. to 11d. per lb. Aniline is lower. Carboic acids slightly easier in price. Sulpho-

THE METAL MARKET.

ON, WEDNESDAY.—Pig iron firm. Scotch warrants closed at Middlesbrough 39s. 10d. cash, and hematite 47s. 8d. Copper Chili bars, G.O.B.'s and G.M.B.'s, closed at £48. 17s. 6d. s. 6d. cash, and £49. 3s. 9d. to £49. 8s. 9d. three months. Straits closed at £61. 6s. 3d. to £61. 16s. 3d. cash, and 3d. to £62. 6s. 3d. three months; Australian, £62. 10s. 6d. Lead firm: Spanish, £11. 18s. 9d.; English, £12. 2s. 6d. Silesian spelter, ordinary, £17. 2s. 6d. Antimony, £30. 10s. to £31. Quicksilver: ds, £7. 7s. 6d.; second hands, £7. 7s. Copper shares: Cape, 2½; Copiapo, 2½; Libiola, 2½; on and Barry, 2½ to 3½; Rio Tinto, 26½ to 27; Tharsis,

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

There is practically no change in the position of palm oil, nominally the same and business slow. Olive continues dily held, in spite of the indifferent demand. Linseed is at 15s. 3d. to 16s. 6d., for Liverpool makes, in export tonseed is still quiet and slow of sale, but so far the prices of refined continue to range from 15s. 3d. to 16s. per cwt. for Castor remain steady at 3½d. for first pressure French, good seconds Calcutta, and 3¼d. per lb. for Madras, but the market is quiet. Tallow is unchanged, and affords no occasion for remark. Resin, with perhaps the exception of common, keeps all prices, but all grades are moving very slowly. Spirits of turpentine are selling fairly well for spot requirements at 21s. per cwt., of 3d. Petroleum dull, with prices still standing nominally at 7d. for American, and 5½d. to 5¾d. per gallon for refined.

—Owing to heavy arrivals of American cakes, prices in Liverpool have fallen, Liverpool makes of Linseed now being quoted £6. 7s. and moving fairly well thereat. W. American £4. 15s. 3d. Cottonseed (decorticated), American £5. 2s. 6d. to 6s., according to quality; and Liverpool makes £5. 17s. 6d.; Egyptian in better demand at £3. 16s. 3d.

RS.—Prices are steady, and practically without change. Oxfordshire, common, £10., medium, £12., best, £15., common, 40s.; medium, 50s., best, 60s.; Welsh, best, 40s., common, 18s.; Irish, Devonshire, 40s. to 45s. J.C., 65s. Umber: 40s. to 45s. White lead, £16. unchanged. Venetian red, £6. to £10. Cobalt: Prussian blue, 9s.; black, 9s.; blue, 6s. Oxide of iron: Common, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The markets remain dull. It appears difficult for the demand to reach the supply, which is abundant, consequently values are the way, when at these times they should be advancing. The late, compared with the same time a year ago, are: Linseed, against 269,378 quarters; rapeseed, 43,785 against 35,822 quarters; cottonseed, 95,206 tons, against 238 tons; oilcake, 4,863 tons, against 6,296 tons; 166 tons, against 2,854 tons. Linseed oil: Spot, naked, quiet, per cwt.; forward June-August, 13s. 6d. sellers; Sept.-Dec., 14s. 6d. and refined, £1 to £1. 10s. per ton extra. Refined cotton oil, spot, dull, 12s. 9d. per cwt.; forward June-Aug., 13s. sellers; April, 13s. 6d., sellers. Filtered, refined, £1. per ton extra; 11s. 7½d., naked; casks £1., and ordinary barrels £1. 10s. ra. Oleines remain of very low value, viz., from £16. to £18. on, 95% to 97% saponifiable matter. Turpentine, 21s. 6d. per cwt. Castor oil unchanged. Olive oil, owing to the requirements of woollen manufacturers, moves off very slowly, to doubt a disappointment to many who anticipated better prices. Mineral oil unchanged; there are more sellers than buyers. £16. to £18. per ton. Chlorestine (extract from wool fat), 11s. Italian olive oil soaps, £16. to £18. per ton. Yorkshire soap, £8. per ton.

CAKES.—The mills continue quiet, and prices are little changed. Linseed cakes quiet: 95% pure, £5. 7s. 6d. to £5. 10s. per ton; oilcakes, unchanged. Russians, £5. 15s. to £6 per ton. Cotton cakes quiet: best makes £3. 14s. 9d. to £3. 15s.; seconds, £3. 11s. 3d. to £3. 12s. 6d. per ton. Rape cakes unchanged.

PAINTS.—The trade generally continues well employed, both for home and foreign markets. Prices are: White and red leads unchanged. Ready mixed paints, in tins, £23. to £25. per ton. Paint remover, 25s. per cwt. Imperial black varnish, £5. 10s. per ton. Mineral dry colours £3. to £8. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia has been steadily dull all the week at late low value, hardly, if anything, altered, namely, £7. 12s. 6d. prompt f.o.b. Leith, and £7. 15s. prompt f.o.b. Glasgow. The position as regards forward business remains as it was, buyers and sellers in marked disagreement as to prices, with the result that business is a blank. General chemicals do not improve, and consequently there is only a moderate bulk of movement going on, all at late low prices ruling, the tendency being still to the fall. Sulphate of copper stands at last week's figure, but it is easier. Nitrate of soda is quoted cheaper. Excluding lubricants, which remain healthy, mineral oils and paraffins are all weak, and there is a fall looming both in burning oil and solid paraffins. Prices of these as given below are nominal only. Of four of the Scotch mineral oil companies just out with balance sheets for the year, only one pays anything. One of the remaining three has sustained a positive working loss.

Chief prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, soda ash, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, 48/52°, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, 35/37°, £6. 10s. nett, Tyne; salteake, 19s. to 20s.; borax, English, refined, £16. 10s. and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4d. less 5%, any port; nitrate of soda, 7s. 9d. to 8s.; sulphate of ammonia, £7. 12s. 6d. prompt, f.o.b. Leith; sal ammoniac, first and second white, £33. and £31. nett, any port; sulphate of copper, £16. 5s. less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 6¼d. to 6½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 3,480 bags cane unrefined, 4,780 bags beet unrefined, and 13,415 bags beet refined.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there is no change in prices. The demand for caustic soda continues fairly steady. Soda crystals are quoted at £2. 12s. 6d. per ton, gross weight, locally. Caustic, 70%, £7. 10s. per ton; 76/77%, £9. per ton. Sulphur, £5. per ton.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett; do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett. Hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady at 9s. per ton, f.o.b. Tees.

COALS.—Trade is rather quiet, and orders are not coming in quite so freely. Household and gas coals are weak in demand, as is usual

at this time of the year. Coke is brisk, and there is an excellent demand; price is firm at 15s. 6d. to 16s. per ton, f.o.b. Best Northumbrian steam, 8s. 6d. to 8s. 9d. per ton; second qualities, 7s. 6d. to 7s. 9d. per ton; small steam, 3s. 9d. to 4s. per ton; household coals, 10s. to 11s. per ton; gas coals, dull, 7s. 3d. to 7s. 9d. per ton; coke, steady, 15s. 6d. to 16s. per ton.

New Companies.

Refined Rubber Syndicate.—CAPITAL £6,500., in 100 ordinary shares of £50., and 1,500 deferred shares of £1. each. This company has been formed to carry on the business of rubber, caoutchouc, gutta percha, &c., manufacturers. Registered office: 5, Great Winchester-street, E.C. The subscribers to the memorandum of association are:—W. Baines, 5 and 6, Great Winchester-street, E.C., merchant; G. J. Leslie, 5, Copthall Buildings, E.C., merchant; H. Baines, 15, Long-lane, E.C., merchant; W. Norris, 5 and 6, Great Winchester-street, E.C., engineer; R. W. H. Bailey, 150, King's-road, Kingston, draughtsman; F. J. Lawrence, 13, Lillie-road, Fulham, clerk; W. R. C. Moore, 142, Palmerston Buildings, E.C., C.A.

Pacific Islands Co., Ltd.—CAPITAL £200,000., in £1. shares which 100,000 are preference shares. This company has been formed to raise coconut trees, produce copra, and ship guano, &c., in certain islands in the Pacific Ocean. The subscribers to the memorandum of association are:—J. A. Fuller, 50, Chatterton-road, Finch Park, N., secretary; A. W. Lawson, 338, Romford-road, Forest G. clerk; H. Paul, 14, Brailsford-road, Tulse Hill, S.W., gentleman; Jones, 166, Maygrove-road, W. Hampstead, accountant; E. A. Bell, 98, Richmond-road, Bayswater, solicitor; D. J. Prosser, 29, Cuthbert-road, Denmark Hill, S.E., clerk; H. D. Brooke, 43, Upper Bell Place, W.C., solicitor.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. E. HUGHES and G. W. BURNS, soap manufacturers and chandlers, Stock under the style of Hughes and Burns.
W. HOLMAN and H. DONALD, copper-smiths, Salem Copper Works, under the style of Holman and Donald.

IMPORTS OF CHEMICAL PRODUCTS

AT
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 15th.

Acetic Acid—	
Holland, 168 pks.	A. & M. Zimmermann
" 50 drs.	R. W. Greeff & Co.
" 1	G. Rahn & Co.
" 31	Little & Johnston
Acetone—	
Belgium, 23 drs.	T. V. Tucker
Germany, 9	Matthews & Luff
Arsenic—	
Germany, 10 cks.	G. Boor & Co.
" 10	T. H. Lee
" 2	Brit. Anti-Fouling C. Co.
Asbestos—	
Germany, £20	Craven & Co.
Barium Chloride—	
Germany, 11 cks	Petri Brs.
Barytes—	
Belgium, 48 cks.	J. L. Lyon & Co.
Germany, 22	W. Harrison & Co.
Holland, 88	Taylor Brs.
" 22	Burrell & Co.
Bleaching Powder—	
Holland, 20 cks.	J. M. Steel & Co.
Bromide of Iron—	
Germany, 15 cks.	A. & M. Zimmermann
Bromine—	
Germany, 40 cs	A. & M. Zimmermann
Camphor—	
Japan, 135 tubs	Lewis & Peat
" 68	R. Warner & Co.
" 136	S. Figgis & Co.
China, 100 cs.	"
Germany, 3 cks.	T. H. Lee
Hong Kong, 295	R. Warner & Co.
Caoutchouc—	
Zanzibar, 113 c.	L. & I. D. Jt. Co.
Cape, 49	Kleinwort & Co.
Sydney, 21	McIlwraith & Co.
U. States, 125	Prop. Bull. Wf.
France, 11	S. Figgis & Co.
Rangoon, 222	L. & I. D. Jt. Co.
France, 5	Wainwright Brs.
U. States, 3	G. Thompson
Singapore, 74	L. & I. D. Jt. Co.
" 26	Elkan & Co.
Madagascar, 31	Ross & Deering
France, 10	H. Johnson & Sons
Singapore, 402	Anderson, Weber & Co.
Castor Oil—	
France, 31 pks.	F. Boehm
" 12 cs	J. Puddy & Co.
" 15 cks.	Anderson, Weber & Smith
F. Indies, 62	Cayzer, Irvine & Co.
Caustic Potash—	
Germany, 9 drs.	J. M. Steel & Co.
France, 10	W. E. Cole

Chemicals (otherwise undescribed)	
Holland, £5	G. Rahn & Co.
" 174	M. Benschur
Denmark, 57	M. D. Co.
Belgium, 12	T. H. Lee
Denmark, 20	Bailey & Leatham, Ld.
U. States, 145	Lunham & Moore
Holland, 28	H. J. Hughes
" 20	B. & F. Wf. Co.
" 14	H. Lorenz
" 16	F. Boehm
Belgium, 84	O. Scholzig
" 6	Union Lge. Co.
Germany, 40	Petri Brs.
" 100	H. Lambert
Holland, 25	Carey & Sons
Germany, 130	L. & I. D. Jt. Co.
Belgium, 593	John Cockerill Line
Holland, 26	T. H. Lee
Germany, 242	"
" 901	A. & M. Zimmermann
France, 76	Mory & Co.
Copperas	
Germany, 4 cks.	A. & M. Zimmermann
Cream of Tartar—	
France, 6 cks.	C. Askins & Nisbet
" 5	B. & F. Wf. Co.
" 23	W. C. Bacon & Co.
Spain, 2	"
Austria, 2	F. C. Devon & Co.
Holland, 4	Kirkpatrick & Co.
France, 5	M. Ashby Ld.
" 1	H. Johnson & Sons
Creosote—	
Belgium, 7 dms.	T. V. Tucker
Dyestuffs—	
Anthracene	
Italy, 63 cks.	Burt, Boulton & Co.
Argols	
Italy, 755 bgs	B. Jacob & Sons
" 187 cks.	Thames S. T. & L. Co.
" 10	Bailey & Leatham
Cochineal	
Canaries, 8 bgs.	Swanston & Co.
" 11	Sperling & Williams
Cutch	
Ceylon, 211 cs.	Cayzer, Irvine & Co.
Singapore, 200 bgs	E. Davis & Co.
" 315	J. Swire & Sons
Divi Divi	
E. Indies, 1,549 bgs.	Walker, Munroe & Co.
" 109	Culverwell, Brooks & Co.
Extracts	
Belgium, 21 cks.	T. H. Lee
Austria, 200	A. J. Humphery
France, 25	B. & F. Wf. Co.
Germany, 10 bgs.	Fuerst Brs.
Denmark, 2	M. D. Co.
Germany, 100	T. H. Lee
France, 200 cs.	"

Fustic	
B. W. I., 59 t.	S. Dobree & Sons
" 8	P. Macfadyen & Co.
" 11	Benekendorff & Co.
" 13	J. Hales, Caird & Co.
" 5	G. T. Benton & Son
Gambier	
Singapore, 447 bgs.	Beresford & Co.
" 193	S. Barrow & Bro.
" 425	G. R. Haller
" 353	94 bls. Union L. Co.
" 320	Ross & Deering
" 320	J. Swire & Sons
Indigo	
E. Indies, 10 chts.	Elkan & Co.
" 72	Ross & Deering
" 70	F. Claydon & Co.
" 24	H. Johnson & Sons
" 35	H. J. Perlach & Co.
" 17	R. Von Glehn & Sons
" 13	Arbuthnot, Latham & Co.
Ceylon, 16	J. Owen
E. Indies, 44	L. & I. D. Jt. Co.
" 28	Croysdale & Co.
" 6	Binny & Co.
Logwood	
B. W. I., 17 t.	Park Macfadyen & Co.
" 23	S. Dobree & Sons
" 5	G. T. Benton & Son
Myrabolams	
E. Indies, 738 bgs.	Baxter & Hoare
Shumac	
Italy, 100 bgs.	Prop. Midd. Wf.
Tanners' Bark	
Natal, 45 t.	Flack, Chandler & Co.
Belgium, 40	Sawer, Sons & Co.
" 33	Leach & Co.
" 42	Hicks, Nash & Co.
Natal, 4	A. & W. Nesbitt
Farina—	
Holland, 50 bgs.	J. Barber & Co.
" 50	J. Knill & Co.
" 505	R. Bennett & Co.
" 100	Seaward Brs.
Glucose—	
U. States, 1,500 pks.	J. Badgett & Sons
" 200	Williams, Torrey, & Co.
" 250	250 Trier, Meyer, & Co.
" 250	250 Knowles & Padgett
" 500	500 Bellamy's Wf. Co.
" 500	500 G. Clark & Son
" 500	500 Morton & Co.
" 195	730 Bennett S. S. Co.
" 50	280 Ohlenschlaeger Brs.

"	150	844	Sons
"	2,100	2,100	Rolls
"	500	500	C. S. I.
"	100	530	H. Johnson
"	2,875	3,112	R. G.
Glue—			
Germany,	£16	Steinhoff, Sons & Co.	
Italy,	117	Sandel & Co.	
Holland,	50	G. Rahn & Co.	
U. States,	17	Armour & Co.	
France,	16	Pickford & Co.	
"	20	Morison, Poles & Co.	
Belgium,	288	J. Barber & Co.	
Germany,	195	L. & I. D. Jt. Co.	
"	57	T. H. Lee	
Australia,	120	J. L. Lee	
"	45	J. Kinchin	
Holland,	24	Carey & Sons	
France,	101	Burnett Brs. & Co.	
Germany,	16	H. Lam	
"	325	J. Kitchin	
France,	33	B. & F. Wf. Co.	
"	12	Bennett S. S. Co.	
"	17	Hernu, Peron, & Co.	
Infusorial Earth—			
Germany,	£15	Perkins & Co.	
"	46 t.	A. Haacke & Co.	
Holland,	£28	J. Barber & Co.	
Iron Oxide—			
Austria,	27 brls.	W. Pope & Co.	
Lamp Black—			
U. States,	100 cs.	L. & I. D. Jt. Co.	
Lithopone—			
Holland,	20 cks.	D. Storer & Co.	
Manganese Ore—			
Japan,	25 t.	J. Swire & Sons	
Manure—			
Belgium,	14 t.	H. Johnson & Sons	
Cape Cross,	840	A. Hunter & Co.	
G.W. Africa,	10	Perkins & Co.	
Belgium,	10	T. H. Lee	
Holland,	10	J. O.	
"	54	Burnett Brs. & Co.	
France,	20	Lewis, Chas. & Co.	
"	230	Manure	
Methyl Alcohol—			
France,	20 dms.	A. H. Winter	
Belgium,	7	T. Jones & Co.	
Mica—			
E. Indies,	£90	W. M. Smith & Co.	
Molasses—			
B.W.I.,	3 cks.	D. S. I.	
"		Shores, & Co.	
Nitre—			
Belgium,	850 bgs.	Anglo-Cant. W.	
Ochre—			
Spain,	100 brls.	J. L. Lyon & Co.	
France,	80 cks.	C. F. Gerl	
"	1	Stobbs, Wilson, & Co.	
U. States,	155	W. Harrison & Co.	
"	13 brls.	Taylor	

White Rock—
um, 200 t. Sawyer, Sons, & Co.
um, 200 West & Penrose
nd, 2 brls. T. H. Lee
l., 60 140 bgs. Scholefield,
Goodman, & Co.
66 Perkins & Homer
300 cks. Anglo-Contl. G.
Works
ates, 50 W. R. Comings & Co.
Pago—
ates, 17 cs. Lunham & Moore
any, 37 cks. B. Gallaway
n, 484 J. Thredder, Son, & Co.
any, 9 Fellows, Morton,
& Co.
n, 51 G. R. Haller
364 Williams
any, 8 H. Johnson & Sons
n, 133 J. Travers, Son, & Co.
Carbonate—
nd, 100 c. J. Barber & Co.
e, 60 A. J. Luke & Co.
e, 30 J. A. Reid
any, 20 Petri Bros.
300 Spies Bros. & Co.
Chloride—
any, 250 bgs. F. W. Berk & Co.
nd, 33 H. Johnson & Sons
Oxymuriate—
m, 100 kgs. G. Boor & Co.
Permanganate—
nd, 5 cks. G. Rahn & Co.
Sulphate—
m, 50 bgs. Charles & Fox
m, 7 brls. John Cockerill Line
Oil—
any, 20 brls. J. E. Powell
Stearine—
ies, 3,217 bgs. Lucas & Spencer's
Wf.
any, 45 cks. L. & I. D. Jt. Co.
m, 4,200 c. R. Waters
nd, 338 R. W. Greeff & Co.
m, 30 W. Bauer & Co.
nd, 1,760 R. Waters
Acetate—
e, 200 cs. J. Harrison
m, 19 cks. H. Lorenz
Sulphate—
any, 126 cks. Deering &
Robottom
m, 530 cs. Horne & Co.
nd, 168 T. H. Lee
e, 1,300 E. & T. Pink
um, 8 Butler's Wf., Ltd.
nd, 30 Philipps & Graves
um, 20 Hernu, Peron, & Co.
um, 138 Leach & Co.
any, 782 E. & T. Pink
138 pks. J. Hall, junr.,
& Co.
nd, 1,839 cs. Little & Johnston
um, 110 F. Clayton & Co.
um, 250 bxs. Becker & Wagner
ates, 80 cs. Taylor Bros.
um, 100 bgs. L. & I. D. Jt. Co.
um, 250 R. Bennett & Co.
nd, 690 cs. A. Starck
ates, 30 brls. Beck & Pollitzer
um, 3,450 bgs. Union L. Co.
um, 200 W. G. Taylor & Co.
Inc—
um, 51 bls. G. Rahn & Co.
urous Acid—
nd, 10 drs. Perkins & Homer
ric Acid—
nd, 7 pks. H. Lorenz
21 F. C. Devon & Co.
27 Kirkpatrick & Co.
29 27 drs. B. & F. Wf.
Co.
um, 4
marine—
any, 20 cs. Steinhoff, Sens,
& Co.
um, 10 W. Harrison & Co.
nd, 9 J. Barber & Co.
um, 41 D. Storer & Sons
ad, 2 W. H. Carey & Sons
um, 20 cks. Thames S. T. &
L. Co., Ltd.
5 cs. Hernu, Peron, & Co.
ah—
any, 41 pks. H. Lambert
e, 2 Mory & Co.

U. States, 28 Taylor Bros
White Lead—
Germany, 3 cks. H. Lambert
Belgium, 12 brls. Leach & Co.
Germany, 29 cks. W. A. Rose & Co.
" 74 Perkins & Homer
Norway, 40 R. W. Greeff & Co.
Germany, 23 Spies Bros. & Co.
Belgium, 18 Perkins & Homer
Norway, 40 M. D. Co.
Wood Pulp—
Norway, 5,860 pks. London Paper Mills
Sweden, 1,000 Henderson, Craig,
& Co.
" 72 Christophersen,
Andrews, & Co.
Germany, 97 G. S. N. Co.
" 600 Daily Telegraph Co.
" 129 W. G. Taylor & Co.
Denmark, 160
No way, 240
" 300 W. E. Bott & Co.
" 640 Hummel & Co.
Portugal, 350 Page, Son, & East
" 750 E. J. & W. Goldsmith
Holland, 76 Henderson, Craig,
& Co.
Sweden, 1,071 Horne & Co.
204 C. S. Lovell
Norway, 50 F. Simson & Co.
Holland, 270 Philipps & Graves
Belgium, 2,799 E. J. & W. Goldsmith
Sweden, 76 Thames S. T. & L. Co.
Canada, 155 Henderson, Craig,
& Co.
Holland, 54 C. S. Lovell
Zinc Oxide—
U. States, 200 brls. M. Ashby, Ltd.
Holland, 125 W. Balchin, Ltd.
M. Ashby, Ltd.

LIVERPOOL.

Week ending May 13th.

Acetate of Lime—
New York, 267 bgs.
Barytes—
Rotterdam, 56 cks.
Antwerp, 20 60 bgs.
Bone Ash—
Campana, 621 bgs.
Bone Meal—
Bombay, 2,000 bgs.
Borates—
Galveston, 5,583 sks.
Caoutchouc—
Havre, 2 bgs. 27 cs. Canard
S. S. Co., Ltd.
Chemicals (otherwise undescribed)
Bordeaux, 1 cs.
Cod Oil—
Hamburg, 33 brls.
Colours—
Rotterdam, 10 cks 7 tubs
Cottonseed Oil—
Galveston, 100 brls. Otto Monsted
" 250
Cream of Tartar—
Barcelona, 5 cks. Sachse &
Klemm
" 10
Bordeaux, 31 J. & L.
Barcelona, 5 btls. Setzler
Dyestuffs—
Aniline Salts
Rotterdam, 4 cs.
Argois
Bordeaux, 10 cks.
Cochineal
Gd. Canary, 10 bgs. Burrell & Co.
Cutch
Rangoon, 850 bxs.
Divi Divi
Hamburg, 373 bgs
New York, 742 A. Dobell & Co.
Myrabolams
Bombay, 1,350 bgs.
Shumac
Barcelona, 100 sks.
Gelatine—
Rouen, 10 cs. Co-op W'sale
Society, Ltd.
Glucose—
New York, 250 brls.
Boston, 50
Philadelphia, 6 hf.-brls.
Glue—
Rouen, 50 cks. 20 bgs. 10 cs. Co-op.
W'sale Society Ltd.

Rotterdam, 60
St. Nazaire, 66 pks.
Infusorial Earth—
Hamburg, 89 bgs.
Lamp Black—
Gothenburg, 100 cs.
Limestone—
Antwerp, 1 crt. 8 pks.
Manganese—
Rotterdam, 24 cks.
Manure—
Philadelphia, 197 bgs.
Molasses—
Alexandria, 360 brls.
Ochre—
Rouen, 98 cks. Co-op W'sale
Society, Ltd.
Paint—
Boston, 10 cs. Walsh, Lovett
& Co., Ltd.
Rotterdam, 4 dms. 4 brls.
Paraffin Scale—
Baltimore, 200 brls.
New York, 80 Anglo-Am. Oil
Co., Ltd.
Philadelphia, 100
New York, 170 Thompson &
Bedford
Potash—
Rouen, 40 cks. Co-op W'sale
Society, Ltd.
Dunkirk, 21 dms. Bancroft &
Co., Ltd.
Pyrites—
Huelva, 3,629 t. Matheson & Co.
Rosin—
Brunswick, Ga., 4,425 brls. Paterson,
Downing & Co.
New York, 250
Salt—
Hamburg, 500 bgs.
Saltpetre—
Hamburg, 6 cks.
Karachi, 243 bgs.
Soap—
Philadelphia, 863 pks.
Bordeaux, 4 cs.
Soapstone—
Bordeaux, 300 bgs. Geo. G. Black-
well, Sons & Co.
Sodium Acetate—
Rouen, 56 cks. Co-op W'sale
Society, Ltd.
Sodium Chromate—
Hamburg, 26 cks.
Starch—
Antwerp, 50 cs.
Rotterdam, 202
New York, 96 bgs. 200 sks.
Antwerp, 240 J. T. Fletcher
& Co.
Stearine—
Rotterdam, 5 cs.
Tallow—
San Francisco, 600 tcs.
Boston, 300
" 95 T. M. Marc
& Co.
Campana, 185 cks.
Philadelphia, 300
Tartar—
Bordeaux, 4 cks.
Treacle—
New York, 300 brls.
St. John, N.B., 1 cs.
Bordeaux, 1
Boston, 500
Gothenburg, 26 cks. G. R. Shaw
& Co.
St. Nazaire, 1,100 brls.
Ultramarine—
Rotterdam, 16 cks.
Varnish—
New York, 9 brls. W. A. Warren
Waste Salt—
Hamburg, 4,165 bgs.
White Lead—
Rotterdam, 19 cks.
Antwerp, 13
Wood Pulp—
Hamburg, 111 bls.
Gothenburg, 80
" 874 F. Doherty
G. F. Green
& Co.
" 170
Boston, 123 Lever Bros., Ltd.
" 121
Rotterdam, 14

Zinc Oxide—
Antwerp, 10 cks. 70 brls.
Zinc White—
Rotterdam, 151 cks.

MANCHESTER.

Week ending May 15th.

Acetate of Lime—
New York, 510 sks.
Alizarine—
Rotterdam, 48 cks.
Ammonia—
Hamburg, 1 ck.
Rotterdam, 7 cs. 30 cylds.
Ammonium Chloride—
Hamburg, 1 ck.
Aniline—
Rotterdam, 1 ck.
Aniline Salts—
Rotterdam, 7 cks.
Carbolic Acid—
Treport, 22 cks.
Chemicals (otherwise undescribed)
Rouen, 20 cks.
Colours—
Antwerp, 5 cks. 8 pks.
Rotterdam, 34 7 cs.
Cream of Tartar—
Rotterdam, 8 cks.
Farina—
Hamburg, 40 bgs.
Glucose—
Rotterdam, 10 cks.
New York, 50 brls.
Glue—
Hamburg, { 20 cks. 10 bsks.
60 bgs.
Treport, 5
Antwerp, 6
Rotterdam, 120
Rouen, 60 bls.
Limestone—
Antwerp, 1 crt. J. T. Fletcher
& Co.
10 pks.
Antwerp, 10 pks.
Litharge—
Rotterdam, 15 cks.
Manganese Ore—
Rotterdam, 2 cks.
Mica—
New York, 100 brls.
Ochre—
Rotterdam, 26 cks.
Paraffin Scale—
New York, 1,725 brls. Anglo-
American Oil Co.
Phosphate—
Rotterdam, 9 cks.
Potash—
Treport, 6 cks. 12 dms.
Antwerp, 6 20
Rotterdam, 5
Rouen, 5
Potassium Chlorate—
Gothenburg, 20 brls.
Potassium Chloride—
Hamburg, 14 cks.
Sodium Acetate—
Treport, 28 cks.
Sodium Naphthol—
Rotterdam, 5 cks.
Starch—
Rotterdam, 134 cs.
New York, 750 sks.
Hamburg, 25 cks. 328
Stearine—
New York, 57 hds. Co-op.
10 tcs. W'sale Society
Tannic Acid—
Hamburg, 4 cks.
Tartaric Acid—
Rotterdam, 22 cks.
Waste Salt—
Hamburg, 514 cks. and qty.
White Lead—
Antwerp, 8 cks.
Wood Pulp—
Hamburg, 884 bds. 10 bls.
New York, 1,033 Christie & Co.
Gothenburg, 1,490 bls.
Christiania, 2,384
Drammen, 760
Zinc Oxide—
New York, 100 brls.

HULL.

Week ending May 15th.

Barytes — Bremen, 47 cks. Rotterdam, 88	Wilson, Hutchinson & Son
Castor Oil — Aalesund, 1 bx.	Wilson, Sons, & Co., Ld.
Chemicals (otherwise undescribed)— Hamburg, 4 cs. Antwerp, 281 pks. Dunkirk, 543 Drontheim, 21 cks.	Wilson, Sons, & Co., Ld. " " " "
Cod Oil — Drontheim, 115 brls.	Wilson, Sons, & Co., Ld.
Aalesund, 49 Bergen, 60	" "
Colours — Bremen, 4 cks. Rotterdam, 2 Danzig, 21 Rotterdam, 2	J. & T. Seddon W. & C. L. Ringrose Hutchinson & Son Blundell, Spence, & Co. Wilson, Sons, & Co., Ld.
Antwerp, 15 New York, 500 brls.	Wilson, Sons, & Co., Ld.
Cream of Tartar — Rotterdam, 2 cks.	Hutchinson & Son
Dyestuffs — Argols Bordeaux, 57 cks. Shumac Palermo, 70 bgs. " 600	Wilson, Sons, & Co., Ld. Wilson, Sons, & Co., Ld.
Farina — Harlingen, 150 bgs. Stettin, 100 Hamburg, 100 Harlingen, 100 bls.	W. & C. L. Ringrose Wilson, Sons, & Co., Ld. Hutchinson & Son
Glucose — Stettin, 200 bgs. New York, 50 brls. Amsterdam, 80 bgs.	Hutchinson & Son
Glue — Stettin, 22 cks. Rotterdam, 5 bgs. Fiume, 100 Dunkirk, 57 pks.	Wilson, Sons, & Co., Ld. Hutchinson & Son Wilson, Sons, & Co., Ld.
Lead Acetate — Hamburg, 1 ck. Stettin, 6	Bailey & Leatham, Ld. Wilson, Sons, & Co., Ld.
Paint — New York, 1 bx.	Wilson, Sons, & Co., Ld.
Phosphate — Boca, 550 t. Ghent, 1,000 bgs. Dunkirk, 179	Wilson, Sons, & Co., Ld. " "
Phosphorus — New York, 200 cs.	Wilson, Sons, & Co., Ld.
Potash — Dunkirk, 20 cks.	Wilson, Sons, & Co., Ld.
Pumice Stone — Messina, 427 pks.	Wilson, Sons, & Co., Ld.
Pyrites — Huelva, 2,709 t.	

Soap—

Molfetta, 300 bxs.	Wilson, Sons, & Co., Ld.
Starch — Bremen, 1,805 pks. Amsterdam, 40 cs. Ghent, 266 pks. " 122 cs.	Veltmann & Co. Hutchinson & Son Wilson, Sons, & Co., Ld. Hutchinson & Son
Stearine — Christiansund, 30 brls.	Wilson, Sons, & Co., Ld.
Sulphur — Catania, 93 pks. " 50 t.	Wilson, Sons, & Co., Ld.
Tallow — New York, 60 tcs.	Wilson, Sons, & Co., Ld.
Tar — Stockholm, 20 brls.	Wilson, Sons, & Co., Ld.
Tartar — Bordeaux, 13 cks.	Rawson & Robinson
Tartaric Acid — Rotterdam, 10 cks.	Hutchinson & Son
Treacle — Boston, 325 brls. New York, 454	Wilson, Sons, & Co., Ld. " "
Turpentine — Bordeaux, 5 cks. Trieste, 15 cs.	Rawson & Robinson Wilson, Sons, & Co., Ld.
Ultramarine — Rotterdam, 1 ck.	Hutchinson & Son
Varnish — New York, 5 brls.	Wilson, Sons, & Co., Ld.
Waste Salt — Hamburg, 1,796 bgs.	Bailey & Leatham, Ld.
White Lead — Rotterdam, 19 cks. Antwerp, 50 Rotterdam, 51 Dunkirk, 13 brls.	W. & C. L. Ringrose Bailey & Leatham, Ld. Hutchinson & Son Wilson, Sons, & Co., Ld.
Wood Pulp — Hamburg, 200 pks. Stockholm, 84 Boston, 1,472 Gothenburg, 925 bls. Christiania, 134 cs. Drontheim, 360 Hango, 880 Helsingfors, 557 " 192	Bailey & Leatham, Ld. Wilson, Sons, & Co., Ld. Wilson, Sons, & Co., Ld. J. Good & Sons " "
Zinc Oxide — Antwerp, 5 cks.	Bailey & Leatham, Ld.
Rotterdam, 25	Hutchinson & Son
Zinc White — Rotterdam, 5 cks.	W. & H. Johnson

GLASGOW.

Week ending May 20th.

Acetate of Lime — New York, 466 bgs.	
Alumina Sulphate — Antwerp, 48 bgs.	
Antimony Salt — Rotterdam, 5 cks.	J. Rankine & Son
Barium Sulphate — Antwerp, 79 cks.	600 bgs.

Barytes—

Rotterdam, 39 cks.	J. Rankine & Son
Hamburg, 12	220 bgs.
Colours — Rotterdam, 1 bx	9 brls. J. Rankine & Son
Hamburg, 6 cks.	
Dyestuffs — Alizarine Rotterdam, 1 bx	80 brls. J. Rankine & Son
Aniline Rotterdam, 4 bxs	9 brls. J. Rankine & Son
Madder Rotterdam, 2 cks.	J. Rankine & Son
Farina — Delfsryhl, 50 bgs.	
Glucose — New York, 50 brls. Philadelphia, 199	
Glue — Antwerp, 9 brls. Hamburg, 100 bgs.	J. Rankine & Son
" 10	2 cks.
Lead Acetate — Hamburg, 11 cks.	
Minium Rotterdam, 21 cks.	J. Rankine & Son
Oxalic Acid — Rotterdam, 6 cks.	J. Rankine & Son
Paint — Philadelphia, 1 brl.	
Phosphate of Lime and Rock — Ghent, 1,017 bgs.	
Potash — Hamburg, 60 dms.	
Pyrites — Huelva, 1,782 t.	Tharsis Co.
Rosin — New York, 700 brls.	
Soap — Rotterdam, 5 cs.	J. Rankine & Son
Sodium Sulphate — Rotterdam, 1 bx.	J. Rankine & Son
Starch — New York, 200 sks.	
Stearine — Rotterdam, 35 cks.	J. Rankine & Son
Tallow — New York, 30 tcs. Rotterdam, 6 cks.	J. Rankine & Son
Tar Salts — Hamburg, 6 cks.	
Treacle — Philadelphia, 350 brls.	
Varnish — New York, 33 pks.	
Waste Salt — Hamburg, 396 t.	50 bgs.
White Lead — Antwerp, 4 cks. Rotterdam, 70	J. Rankine & Son
Wood Pulp — Christiania, 1,042 bls. Gefle, 5,115	24 cs. Henderson, Craig & Co., Ld.
Zinc Oxide — New York, 100 brls. Antwerp, 50 cks. Rotterdam, 25	J. Rankine & Son
Zinc Sulphate — Rotterdam, 1 bx.	J. Rankine & Son

TYNE.

Week ending May 15th.

Alum Earth — Hamburg, 30 cks.	Tyne S. S. Co.
Antimony — Hamburg, 1 cs.	Tyne S. S. Co.
Barytes — Antwerp, 220 bgs. Rotterdam, 30	Tyne S. S. Co. " "
Cod Oil — Bergen, 5 brls.	
Colours — Rotterdam, 1 cs.	Tyne S. S. Co.
Glue — Hamburg, 5 cks.	Tyne S. S. Co.
Limestone — Antwerp, 4 crts.	Tyne S. S. Co.
Potassium Carbonate — Antwerp, 6 brls.	Tyne S. S. Co.
Salt — Hamburg, 50 bgs.	Tyne S. S. Co.
Saltpetre — Hamburg, 4 cks.	Tyne S. S. Co.
Starch — Antwerp, 40 cs. Rotterdam, 194	Tyne S. S. Co. " "
Tartaric Acid — Rotterdam, 7 cks.	Tyne S. S. Co.
Varnish — Antwerp, 5 kgs.	Tyne S. S. Co.
Waste Salt — Hamburg, 275 t.	
Wood Pulp — Gothenburg, 1,600 c.	

GOOLE.

Week ending May 12th.

Alumina Sulphate — Rotterdam, 1,560 sks.	
Aniline — Hamburg, 10 cks.	
Chemicals (otherwise under.)— Antwerp, 128 bgs.	
Colours — Hamburg, 20 cks.	13 cs.
Dyestuffs (otherwise under.)— Boulogne, 30 cks.	1 cs. 11 pks.
Rotterdam, 429	83
Indigo — Rotterdam, 12 cks.	
Logwood — Hamburg, 260 pks.	
Pitch — Rotterdam, 88 cks.	
Potash — Calais, 14 dms. Dunkirk, 17	
Pyrites — Huelva, 1,000 t.	
Saltpetre — Hamburg, 70 cks.	
Sodium Silicate — Rotterdam, 2 cks.	
Tartar — Rotterdam, 1 ck.	
Waste Salt — Hamburg, 500 bgs.	600 t.

GRIMSBY.

Week ending May 15th.

Barytes — Rotterdam, 134 bgs.	
Caoutchouc — Hamburg, 51 cs. Antwerp, 7	
Chemicals (otherwise under.)— Hamburg, 4 cks.	2 cs.
Rotterdam, 12	
Lamp Black — Helsingborg, 50 cks.	
Plumbago — Hamburg, 1 cs.	

EXPORTS OF CHEMICAL PRODUCTSOF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending May 19th.

Acids — Durban, cks.	£13
--------------------------------	-----

Chinde, 10 cs.	50
Aden, 16	12
Cape Town, 23	33

Ammonia — Calcutta, 42 cs. Cape Town, 12	£60 18
---	-----------

Ammonium Carbonate — Rangoon, 5 cs. Rotterdam, 8 cks.	
--	--

um Chloride— 5 t. 3 c. £92 11 17	Pyridine Bases Hamburg, 3 dms. 7 cks. £183	Soda— Sydney, 6 c. £15 Alexandria, 3 t. 3 9 B. Ayres, 1 13 5 Stettin, 1 3 5	Boracic Acid— Yokohama, 3 t. 3 q. £73 Hamburg, 1 4 c. 30 Melbourne, 2 63
um Sulphate— 100 t. £800 10 113 16 128 310 10 c. 2,540 60 480 50 16 400 255 bgs. 195 115 862 240 2,000	Tar Auckland, 10 brls. £11 Helsingfors, 396 213 Natal, 10 18 Delagoa Bay, 150 kgs. 18 Chinde, 6 8 Larnaca, 10 runlets 8	Soda Ash— Melbourne, 8 t. 3 c. £43	Borax— Rotterdam, 11 t. 18 c. 3 q. £237 Stettin, 6 6 2 111 Bremen, 5 80 Valparaiso, 2 15 55 Montreal, 10 2 212 Rio de Janeiro, 4 7 Hamburg, 2 40 Bari, 1 17 Ancona, 5 7 Genoa, 1 18 Sydney, 4 81 Riga, 1 8 Melbourne, 2 43 Antwerp, 18 13 373
y Sulphide— 5 c. £22	Tar Oil Marseilles, 18 cks. 2 brls. £33	Soda Crystals— Fremantle, 2 t. 3 c. £6 Sydney, 2 19 8	Calcium Chloride— Colombo, 2 t. 18 c. £6 Melbourne, 4 13 10
Acid— 1 t. £34	Toluol Boulogne, 99 brls. £515	Sodium Bicarbonate— Pt. Elizabeth, 1 t. 1 c. £15 Normanton, 17 11	Carbolic Acid— Valparaiso, 9 c. 1 q. £19 Sierra Leone, 10 2 1 Wellington, N.Z., 10 7 N. York, 77 cks. 725 Baltimore, 15 38 Lisbon, 5 3 34 Barcelona, 1 t. 9 2 110 Hamburg, 7 10 20 Rouen, 6 2 393 Calcutta, 1 1 8
id— 6 c. £10	Coal Products (otherwise undes.)— Newport News, 500 cks. £331 New York, 300 500 brls. 515	Sodium Hyposulphite— Tampico, 24 t. 14 c. £99	Caustic Potash— E. London, 6 c. £9
ne, 10 kgs. £10	Copper Sulphate— Lisbon, 20 t. £400 Paris, 10 5 c. 170	Sulphur— Dunedin, 1 t. £6 Sydney, 2 14 Cape Town, 125 cks. 125 kgs. 168 Opoto, 28 brls. 19 Pt. Elizabeth, 180 86 Melbourne, 2 13	Caustic Soda— Alexandria, 33 dms. 13 Algoa Bay, 30 Alicante, 20 Amsterdam, 21 Ancona, 21 Antwerp, 29 15 brls. Baltimore, 100 Barcelona, 174 104 cks. Bari, 17 26 Boston, 32 B. Ayres, 32 Callao, 60 Catania, 15 Christiania, 10 Corunna, 35 11 Fair water, 35 Genoa, 260 Gothenburg, 174 Hamburg, 85 Hiogo, 100 Jaffa, 90 Leghorn, 210 Lisbon, 46 Manilla, 50 Mauritius, 30 Melbourne, 60 Messina, 350 Montreal, 872 New York, 15 Opoto, 1 Para, 1 Philadelphia, 132 290 kgs. Port Natal, 4 Rio de Janeiro, 20 Rouen, 30 San Sebastian, 60 14 Stettin, 30 10 Talcahuano, 33 Tampico, 181 Toronto, 120 Valencia, 547 Vigo, 15
Acid— beth, 12 dms. £6 k, 20 20 cks. 146 ag, 20 46 4 30 20 20 cans 38 20 1 cs. 35 wn, 24 5 30	Copperas— Portland, O., 110 brls. £37	Sulphuric Acid— Durban, 20 cs. £18	Chemicals (otherwise undes.)— New York, 5 t. 5 c. £190 Philadelphia, 13 2 q. 405 Odessa, 2 54 Kurrachee, 15 24 Hamburg, 1 10 40 Marseilles, 1 10 13 Boston, 1 12 49 Calcutta, 10 10 1 15 Barcelona, 3 4 88 Beyrout, 2 62 Perrol, 1 31 Yokohama, 4 10 119
Acid Gas— 40 cydls. £200	Cream of Tartar— Brisbane, 5 c. £21 Pt. Elizabeth, 3 13 Wellington, 1 t. 12 125	Superphosphates— Pt. Orotava, 11 t. 5 c. £28	Citric Acid— Valparaiso, 1 c. 2 q. £12 St. Petersburg, 1 t. 10 166 Christiania, 2 1 7
Soda— 7 t. 7 55 beth, 1 2 151 15 12 130 19 22 6 17 48	Disinfectants— B. Ayres, 7 cks. £10 Pt. Darwin, 9 pks. 41 New York, 30 dms. 17 Calcutta, 4 cs. 10 Penang, 100 42 Shanghai, 16 16 Hamburg, 100 295 St. Lucia, 5 16 Sydney, 45 152	Tartaric Acid— Calcutta, 2 cs. £13 Lyttelton, 1 kg. 6 Melbourne, 20 109	Coal Products— Aniline Colours Boston, 2 kgs. Genoa, 2 cs.
la (otherwise undescribed) 10 dms. £87 100 cks. 1,300 17 60 6 cs. 16 260 320 pks. 4 37 43 20 165 11 c. 10 60 40 flasks 190 95 pks. 12 319 10 35	Guano— Demerara, 10 t. £110	Aluminous Cake— Calcutta, 30 t. 12 c. £112 Bombay, 4 14 1 q. 14	Aniline Oil Barcelona, 10 cks.
Manure— Durban, 80 t. £470 Bordeaux, 15 115 Martinique, 5 6 c. 26 Demerara, 50 500 Pt. Elizabeth, 6 21 Riga, 101 4 210 Havre, 2 50 cks. 115 Malaga, 96 11 699	Myrbane— Rotterdam, 5 cs. £15 Sydney, 37 107 Dunkirk, 10 dms. 18 Amsterdam, 1 rnl. 12	Ammonia— Pisagua, 3 c. 1 q. £15	
Oxygen— Amsterdam, 1 cs. £35	Phosphoric Acid— Mauritius, 25 t. 2 c. £360	Ammonia (Liquid)— Rotterdam, 1 t. 11 c. 1 q. £18	
Phosphorus— Launceston, 3 cs. £30 Lisbon, 2 28	Potash— Sydney, 1 t. 3 c. £19	Ammonium Carbonate— Vera Cruz, 1 t. £97 Montreal, 1 15 c. 63 Bari, 4 7 Leghorn, 5 9 Melbourne, 18 27 Rangoon, 17 2 q. 26 Trieste, 1 6 1 39 Amsterdam, 5 7 Bilbao, 1 1 28	
Potassium Bicarbonate— Philadelphia, 1 t. 1 c. £27	Potassium Chlorate— Madras, 3 c. £6 Cape Town, 1 t. 11 53 Sydney, 3 7 Lisbon, 3 6	Ammonium Chloride— Alexandria, 1 t. £31 Melbourne, 1 19 Piræus, 11 c. 20 Galatz, 30 Amsterdam, 6 q. 9 Hamburg, 1 33 Bombay, 6 15 108 Lisbon, 5 8 Genoa, 1 18 Christiania, 1 11 13 Beyrout, 1 1 33 Bilbao, 1 1 2 33 Hiogo, 2 10 48	
Potassium Cyanide— Townsville, 26 t. 18 c. £1,300 New York, 100 cs. 461 Adelaide, 2 14 180	Potassium Oxalate— Yokohama, 5 c. £12	Ammonium Sulphate— Baltimore, 50 t. 9 c. 2 q. £458 Marseilles, 20 4 155 Valencia, 255 3 1 2,121 Carthagena(Sp), 15 6 120 Gd. Canary, 60 2 480 Las Palmas, 27 5 223 Cullera, 202 15 1 1,550 Castellon, 51 11 3 398 Malaga, 51 12 2 400	
Potassium Prussiate— Rouen, 1 t. £49 New York, 79 cks. 1,154	Salicylic Acid— Sydney, 5 c. £33	Bleaching Powder— Antwerp, 3 cks. 82 Baltimore, 13 cs. 20 bxs.	
Salt Cake— Antwerp, 125 t. £218 Terneuzen, 175 175	Saltpetre— Dunedin, 1 t. £24 Delagoa Bay, 10 c. 11 Wellington, 1 19 Rio de Janeiro, 2 15 59 Opoto, 10 18 208		
Salts of Potash— Auckland, 12 t. 17 c. £820	Sheep Dip— Launceston, 17 c. £30 Dunkirk, 30 dms. 17 B. Ayres, 35 t. 16 660 Punta Arenas, 20 12 280 M. Video, 5 9 100 Adelaide, 14 1 275 Sydney, 100 cs. 15 10 330 Durban, 2 14 30 62		
Acene 163 cks. £1,241 1,105 2,010 50 crates £72 30 brls. £190 30 brls. £19 80,609 gallons 947 730 bgs. £203 30 cks. 20 brls. £195 102 bgs. 6 cks. £113 252 55 100 262 260 350 brls. £95 60 kgs. 5 10 frkns. 20 dms. 5 140 t. 5 cs. 170 101 129 6,400 cks. 1,550 20 13 3,108 3,972 50 brls. 62 2,050 2,500 350 90 138 170 1,273 160 bgs. 582			

Aniline Salts			Piraeus, 45			Cabenda, 100			Melbourne, 170		
Barcelona, 30 cks.			Port Plata, 26			Calcutta, 550	500 bds. 79		Montreal, 50		
Boston, 13 cs.			Rio de Janeiro, 6			Cameroon, 110			Paris, 270		
Christiania, 3			Rotterdam, 1 cs.			C. C. Castle, 110			Pt. Natal, 80		
Genoa, 20			St. John's, 5			Cape Town, 1,750	225		Rangoon, 30		
Montreal, 6			St. John's, Nfld., 20 brls.			Cette, 182			Sydney, 650		
Pitch			Salaverry, 1 cs. 10			Christiania, 120	200		Valencia, 80		
Bilbao, 40 brls.			San Francisco, 5			Conakry, 400			Venice, 50		
Tar			Santiago, 2 tcs.			Curacao, 258	15		Yokohama, 1,000		
Cabenda, 6 brls.			Savanilla, 1 dm.	20	13	E. London, 701	50		Sodium Chlorate—		
Charlotte Town, 20			Shanghai, 225			Galatz, 3			Rotterdam, 60 kgs.		
Gaboon, 2			Sierra Leone, 44	20	dms.	Genoa, 31			Sodium Prussiate—		
Galatz, 10			53 pks.			Gibraltar, 612	50		Naples, 60		
Guayaquil, 100 dms.			Sydney, 4	200	50	Gd. Canary, 470	175		Sodium Silicate—		
Ibrail, 85			Valparaiso, 200			Hamburg, 175			New York, 10 pks.		
Lisbon, 250			Vera Cruz, 2 cs.			Havana, 1			Sodium Sulphate—		
Loango, 15 bls.			Ilolo, 27			Hayre, 790	103 crts.		Valparaiso, 5 t. 16 c.	34	
Mussara, 5			Painters' Colours—			Iquitos, 450			Starch—		
Philadelphia, 300			Acajutla, 24 cks 15 kgs.			Karachi, 251			Arica, 10 cs.		
Copper Sulphate—			Arica, 2 bls.	5	23 cs.	Lagos, 251			Bombay, 3 bgs.		
La Plata, 1 t.	£15		Bahia, 10			Leghorn, 10	100		Sulphur—		
Amsterdam, 3	46		Baltimore, 228			Monrovia, 32	500		Savanilla, 18 c.	14	
Paris, 14 c.	168		Barbadoes, 8	6	4 brls.	Montreal, 100			Pernambuco, 2 t. 27	1	
St. Petersburg, 3	24		Bilbao, 1,253	20	cs.	Mossel Bay, 100	1		Algoa Bay, 3	2	
La Pallice, 1	21		Bombay, 10			Para, 125	3		Boston, 275	2	
Nantes, 20	18	1 q.	Boston, 10			Pedro, 125	3		Sulphuric Acid—		
Lisbon, 20	6	3	B. Ayres, 2 brls 43	4	27	Pisagua, 30	235		B. Ayres, 12 c.	24	
Trieste, 37	2		Fremantle, 1			Pram Pram, 30	235		Iquitos, 15		
Ancona, 50	792		Gothenburg, 110 bxs.			Rangoon, 3	719		Superphosphates—		
Cette, 34	7		Paraffin Wax—			Rosario, 200	50		Gd. Canary, 10 t.		
Galatz, 1	5		Bari, 20 bgs.			Rotterdam, 405	50		Valencia, 50	10 c.	24
Montreal, 1	5		Fiume, 13			St. John's, Nfld. 405	50		Bordeaux, 49	3	
Vigo, 4	10		Genoa, 45	5	cs.	Sapeli, 405	8		Tartaric Acid—		
Barcelona, 11	19		Lisbon, 5			Sierra Leone, 41	0		Callao, 1 c.	14	
Rotterdam, 4	18	1	Phosphorus—			Singapore, 2,458			Tin Oxide—		
Bari, 6	2		B. Ayres, 1 t.	5 c.	£220	Smyrna, 22			Montreal, 5 c.	14	
New York, 13	8		Hiogo, 4		65	Tampico, 38 pks.	1		Varnish—		
Philadelphia, 10	1		Potash Salts—			Tientsin, 840			Arica, 24 cks.		
Antwerp, 10	1		Colon, 4 t.	1 c.	2 q. £361	Trinidad, 30			Antwerp, 24		
Paris, 10	1		Potassium Bichromate—			Victoria, 30			Cadiz, 26		
Riga, 9	13		Rio de Janeiro, 4 c.		£12	Warri, 350			Cape Town, 4		
Gothenburg, 3	4		Leghorn, 6		15	Soda—			Freemantle, 3		
Marseilles, 44	15	3	Potassium Chlorate—			Boston, 56 brls. 10 cks.			Ibrail, 4 brls.		
Fiume, 13	1		Kobe, 5 t.		£174	Quebec, 150			Malta, 1	1 c.	
Reuen, 75	14	3	Bari, 8 c.		16	Rotterdam, 100 kgs.			Melbourne, 62 pks.		
Genoa, 134	10	2	Gutujewsky, 5		161	Rouen, 27 t.			Rio de Janeiro, 3 cks.		
Leghorn, 31	12	2	Hiogo, 10		320	Santos, 147			White Lead—		
Venice, 104	7	2	Philadelphia, 18	5	600	Soda Alkali—			Cape Town, 15 kgs.		
Naples, 18	6		Shanghai, 11		360	Galatz, 40 brls.			Malta, 40		
Bordeaux, 1,030	15	3	Salt—			Genoa, 17			Zinc Chloride—		
Coppers—			Antwerp, 100 t.			Leghorn, 60			Boston, 18 c.		
Valparaiso, 2 t. 10 c.	£5		Baltimore, 445			Montreal, 50			Bombay, 2 t.		
Alexandria, 2 t. 10 c.	6		Boston, 550			Soda Ash—			Rotterdam, 15		
D disinfectants—			B. Ayres, 38	18 c.		Antwerp, 1,750 bgs.			Zinc Oxide—		
Calcutta, 9 pks. 25 cks. 10 dms.	£34		Calcutta, 5,232	10		Baltimore, 1,200			Macao, 9 c.	14	
Lime—			C. C. Castle, 25			Boston, 480	74 tcs. 100 brls.		Baltimore, 11		
Lagos, 1 t. 17 c.	£5		Cape Palmas, 19	16		B. Ayres, 480			MANCHESTER		
C. C. Castle, 10	4	20	Christiania, 313			Dantzig, 18			<i>Week ending May 19th.</i>		
Magnesia—			Charlotte Town, 1,196			Genoa, 80			Alkali—		
Genoa, 2 cs.			Degama, 100			Gothenburg, 590	61		Christiania, 20 cks.		
Magnesium Carbonate—			Freemantle, 46			Hamburg, 1,465	64		Aniline Oil—		
Rouen, 2 t. 1 c.	3 q. £34		Ghent, 100			Hiogo, 227			Hamburg, 12 dms.		
Magnesium Chloride—			Halifax, 100			Montreal, 14			Caoutchouc—		
Genoa, 10 t. 3 c.	£27		Hiogo, 209	10		N. Orleans, 25 tcs. 40			Hamburg, 2 cs.		
Gurima, 1	3		Iquitos, 20			New York, 2,460	31	510	Chemicals (otherwise unmarked)		
Rouen, 5	3	1 q. 12	Lagos, 101	15		Oporto, 20			Antwerp, 4 cks. 18 kgs.		
Magnesium Sulphate—			Melbourne, 226	1		Philadelphia, 2,400	52	1,711	Rotterdam, 17	15	
Bombay, 40 bgs.			New York, 791			Rio de Janeiro, 395			Coal Products (otherwise unmarked)		
Colon, 4 tcs.			Old Calabar, 160	5		Savanilla, 40			Antwerp, 2 cks. 18 kgs.		
Lisbon, 10 cks.			Opobo, 30	2		Sydney, 87 brls.			Dyestuffs (otherwise unmarked)		
Vera Cruz, 2 t. 11 c.			Porto Novo, 25			Venice, 204	80		Rotterdam, 16 sks. 11 cs. 25 kgs.		
Mauve—			Quebec, 2,140			Valparaiso, 50			Iron Oxide—		
Torre del Mare, 20 t. 14 c.	£1,000		Rangoon, 1,121			Vera Cruz, 250 kgs.			Rotterdam, 2 bgs.		
Charlotte Town, 17	27		Rio de Janeiro, 13			Yokohama, 250 kgs.			Pitch—		
Mauritius, 51	288		Santos, 2			Soda Crystals—			La Rochelle, 735 t.		
Oxalic Acid—			Savanilla, 297			Alexandria, 50 brls.			Sodium Bicarbonate—		
Barcelona, 13 c.	2 q. £24		Sierra Leone, 101	15		Barcelona, 30 bgs.			Treport, 2 cks.	70 kgs.	
Boston, 3 t. 5	90		Sydney, 150			Bombay, 18 pks.			Tar Oil—		
Paint—			Trinidad, 55	11		Boston, 125 bgs.	70 cks.		Treport, 74 cks.		
Accra, 50 kgs.			Valparaiso, 10	6	300 cs.	Gibraltar, 55 brls.			Toluol—		
Alexandria, 150	18 brls.		Victoria, Africa, 16	11		Malta, 50			Hamburg, 109 cks.		
Amsterdam, 4 dms.	5		Yokohama, 4			Montreal, 84	75		HULL.		
Ambrette, 1 ck.			Salt Cake—			New York, 140			<i>Week ending May 19th.</i>		
Antwerp, 8	42		Santos, 30 t. 2 c.	£51		Philadelphia, 280			Alkali—		
Barcelona, 8			Sheep Dip—			Valparaiso, 00 kgs.			Abo, 8 cks.		
Boston, 1 cs.			Punta Arenas, 5 t. 18 c.	£125		Sodium Bicarbonate—			Ammonium Sulphate—		
Cape Town, 2	9	24 dms.	B. Ayres, 17	2	712	Algoa Bay, 10 kgs.			Dunkirk, 47 bgs.		
Colombo, 3			Soap—			Alicante, 20			Palermo, 28		
Coruna, 2			Accra, 130 bgs.			Amsterdam, 47			Rotterdam, 100		
Freemantle, 2			Alexandria, 50	265		Bombay, 250			Benzol—		
Gibraltar, 2	40		Baltimore, 500			Bordeaux, 40	8 cks.		Amsterdam, 24 brls.	10	
Hamburg, 2			Batavia, 14			B. Ayres, 500	81		MANCHESTER		
Iquitos, 1 cs. 4 brls.			Belize, 30			Calcutta, 500			<i>Week ending May 19th.</i>		
Islandia, 10 cs.			Roma, 200	6		Cienfuegos, 12			Alkali—		
Loango, 6 brls.			Bombay, 1,380	1 ck. 5		Dunkirk, 10			Abo, 8 cks.		
Manoa, 1	50	10	Boston, 20 brls.	10		Genoa, 90	23		Ammonium Sulphate—		
M. Video, 14			B. Ayres, 10			Hiogo, 750			Dunkirk, 47 bgs.		
Montreal, 2			Sheep Dip—			Hong Kong, 14			Palermo, 28		
Musamides, 10			Punta Arenas, 5 t. 18 c.	£125		Iquitos, 10 bgs.			Rotterdam, 100		
Mussara, 1			B. Ayres, 17	2	712	Madras, 25			Benzol—		
New York, 182			Soap—			Sodium Bicarbonate—			Amsterdam, 24 brls.	10	
Para, 2 cs. 101 pks. 4			Accra, 130 bgs.			Algoa Bay, 10 kgs.			MANCHESTER		
Peru, 20	100		Alexandria, 50	265		Alicante, 20			<i>Week ending May 19th.</i>		
Pernambuco, 20			Baltimore, 500			Amsterdam, 47			Alkali—		
Philadelphia, 1			Barbadoes, 8	6	4 brls.	Bombay, 250			Abo, 8 cks.		

Powder—	110 cs. 289 dms.
21 cks.	15
Acid—	171 cks.
oda—	13 cks.
4	14
300 dms.	(otherwise undescribed)
72 cks.	24 20 cs.
25	2 441 pks.
5	20
12	5 10
8	8
10	8 13
1	140
10	10
55	2
274	7
ulphate—	1 ck. 2 kgs.
Oil—	1,988 c.
1,199	235
35	186
2,607	98
1,762	600
264	103
(otherwise undescribed)	7 cks.
1 ble.	32 cks.
Oil—	52 c.
100	27
18	121
1,370	1,588
and, 115	1,588
people, 34	95
en, 29	1,227
20	7
135	13
37	3,762 bgs.
and, 4 cks.	1 cs.
Colours—	7 cks.
237	2 cs.
220	1 dm.
183	41
3	2
and, 20	1 7
en, 15	8
15	4
209	25
7	2 7
40	160
95	20
11	5
50	500 pks.
329	1 2
4	182 l.
118	1 ck.
p—	300 dms.
1 cs.	1
1	1

Reval,	1 cs.
Tallow—	
Abo,	20 cks.
Bombay,	26
Copenhagen,	15
Gothenburg,	10
Stockholm,	32
Tar—	
Amsterdam,	8 cks.
Antwerp,	5
Abo,	200
Christiania,	6
Copenhagen,	15
Christiansund,	6
Helsingfors,	50
Stettin,	5
Turpentine—	
Christiania,	3 cks.
Yarnish—	
Antwerp,	7 cks. 3 cs. 1 dm.
Abo,	4
Bombay,	125
Gothenburg,	3
Ghent,	3
Hamburg,	2
Rotterdam,	2
Stockholm,	9
Stettin,	15
White Lead—	
Christiansand,	24 kgs.
Whiting—	
New York,	19 cks. 50 bgs.
Trieste,	35

GLASGOW.

Week ending May 20th.

Acetic Acid—	Rio de Janeiro,	£24
Ammonium Sulphate—	Spain,	592 t. 11½ c.
	Rotterdam,	142
	Demerara,	20 6½
Bleaching Powder—	Melbourne,	6 t. 1½ c.
Boric Acid—	Melbourne,	£61
Chemicals (otherwise undescribed)	Rotterdam,	£550
Citric Acid—	Rio de Janeiro,	£24
Coal Products—		
Creosote Oil—	France,	£60
	Helsingfors,	55
Pitch	Ancona,	2,625 t. 16 c.
	Canada,	548
	Antwerp,	12 2
	Hamburg,	25
	Bombay,	25
Tar	U.S.A.,	£53
	Calcutta,	24
Coal Products (otherwise undes.)—	Hamburg,	£40
	Christiania,	125
	Rotterdam,	160
Extracts—	U.S.A.,	£31
Farina—	Calcutta,	4 t. 19¾ c.
Gelatine—	New York,	£1,012
Indigo—	U.S.A.,	£111
Linseed Oil—	Cape Colony,	3 t. 17 c.
	E. London,	1 ¼
	Canada,	4 6¾
	Cape Town,	1 7¾
	M. Video,	1 11½
Litharge—	Johannesburg,	£21
	Canada,	£35. 108.
Logwood—	Spain,	£120
Manganese—	Rouen,	£50
Manure—	Spain,	34 t. 5¾ c.
	Barbadoes,	50
	Trinidad,	186 4
Paint—	B. Ayres,	£30
	Canada,	35
Painters' Colours—	Cape Colony,	qty.
	Calcutta,	11
	Cape Town,	11

Paraffin Wax—	Cape Colony,	£70
	Singapore,	30
	Skien,	10
Potash Salts—	Singapore,	2,000 lbs.
	Mexico City,	£340
Potassium Bichromate—	Higo,	£405
	Rouen,	246
	U.S.A.,	1,006
	Boston,	162
	Antwerp,	162
Rosin—	Calcutta,	£52
Soda Crystals—	Calcutta,	2 t. 14¾ c.
Sodium Bichromate—	Reims,	5 t. 4¾ c.
	Rouen,	10 9¾
	U.S.A.,	3 2
	Antwerp,	1 19
	Canada,	3 15
	Ghent,	5 2
Starch—	Rotterdam,	10 c.
	Rio de Janeiro,	£220
Sulphuric Acid—	Calcutta,	£81
Tallow—	Rotterdam,	11 t. 14 c.
Treacle—	Christiania,	27 t. 16¼ c.

TYNE.

Week ending May 15th.

Alkali—	Rotterdam,	4 t. 18 c.
	Abo,	1 16
	Hamburg,	5 6
	St. Petersburg,	71 5
Alum—	Montreal,	30 t. 7 c.
Alum Waste—	Copenhagen,	147 t. 2 c.
Ammonium Carbonate—	St. Petersburg,	14 t. 19 c.
Ammonium Chloride—	St. Petersburg,	32 t. 11 c.
Ammonium Salts—	Elsinore,	12 c.
Anthracene—	Rotterdam,	63 t. 2 c.
Antimony—	Rotterdam,	5 t. 10 c.
	Hamburg,	1 10
	St. Petersburg,	63 8 c
Barium Binoxide—	Rouen,	11 t. 13 c.
Barium Carbonate—	Hamburg,	11 t.
	St. Petersburg,	49 15
Blanc Fixe—	Genoa,	9 t. 19 c.
Bleaching Powder—	Christiania,	30 t. 5 c.
	Rotterdam,	18 15
	Gothenburg,	5 4
	Lisbon,	15 2
	Copenhagen,	14 19
	Abo,	29 12
	San Francisco,	15 10
	Antwerp,	25 7
	Hamburg,	15 7
	St. Petersburg,	240 6
Caustic Soda—	Copenhagen,	8 t. 8 c.
	Rotterdam,	4 16
	Gothenburg,	4 18
	Rouen,	5
	Bergen,	2
	Abo,	107 1
	Genoa,	22 9
	San Francisco,	57
	Antwerp,	10 4
	Montreal,	14 10
	St. Petersburg,	232 16
Copperas—	Elsinore,	13 t. 2 c.
Linseed Oil—	Montreal,	7 t. 17 c.
Litharge—	St. Petersburg,	1 t. 1 c.
	Gothenburg,	11
	Copenhagen,	18
	Hamburg,	1 6
	Montreal,	12 10

Magnesia—	Rotterdam,	6 c.
	Rouen,	4
	Hamburg,	3
	Montreal,	5
Magnesium Carbonate—	St. Petersburg,	1 t. 6 c.
Paint—	Christiania,	5 c.
	Rotterdam,	30 lbs.
	Bergen,	8
	Genoa,	3
	Antwerp,	5 t.
	Hamburg,	1 10
Plumbago—	Aarhus,	5 c.
Potash Salts—	St. Petersburg,	5 t. 4 c.
Soda—	Christiania,	5 t. 3 c.
	Esbjerg,	25
	Rotterdam,	2 17
	Leghorn,	19 10
	Copenhagen,	19 15
	Abo,	181 12
	Genoa,	5
	Elsinore,	20 15
	Hamburg,	16 5
	St. Petersburg,	18 12
Soda Ash—	Gothenburg,	35 t. 1 c.
	Heglands,	15 11
	Leghorn,	1 7
	St. Petersburg,	1
Sodium Hyposulphite—	Genoa,	10 t. 2 c.
Sodium Silicate—	Gothenburg,	3 t. 10 c.
Sodium Sulphate—	St. Petersburg,	20 t. 7 c.
	Helgends,	335
	Norrkoping,	350
	Copenhagen,	5
	Antwerp,	50 2
	Abo,	1 10
Sulphur—	Gothenburg,	10 t.
	Abo,	1 1 c.
Superphosphate—	Christiania,	4 t. 18 c.
Tallow—	Leghorn,	19 c.
	Genoa,	10 t. 7
	Hamburg,	3 17
White Lead—	Copenhagen,	7 t. 19 c.
	Montreal,	26 7

GOOLE.

Week ending May 12 h.

Benzol—	Rotterdam,	48 cks.
Chemicals (otherwise undescribed)	Amsterdam,	40 cks.
	Boulogne,	1 tin 1 cs.
Coal Products (otherwise undes.)—	Amsterdam,	5 cs.
	Antwerp,	14 cks.
	Boulogne,	29
	Ghent,	6 1
	Hamburg,	8 t.
Dyestuffs (otherwise undescribed)	Boulogne,	1 cs.
	Hamburg,	20 cks.
Manure—	Dunkirk,	250 bgs.
Pitch—	Antwerp,	600 t.
	Dunkirk,	346
Salt Cake—	Ghent,	100 t.

GRIMSBY.

Week ending May 15th.

Chemicals (otherwise undescribed)	Dieppe,	3 cs.
	Hamburg,	10
	Malmo,	2
Coal Products (otherwise undes.)—	Dieppe,	174 cks. 713 t.
	Hamburg,	7 12 pks.
	Malmo,	50 t.
	Rotterdam,	24 4 dms.
Pitch—	Antwerp,	58 t.
Sulphur—	Malmo,	150 bgs.

PRICES CURRENT.

WEDNESDAY, MAY 26TH, 1901.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25% and 40%	per cwt.	5/10½	&	8/9
" Glacial	"	40/-		
Arsenic S.G., 2000	"	1	4	0
Fluoric	per lb.	0	0	3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	"	0	0	1¾
Oxalic	nett	"	0	3½
Phosphoric, 1750°	"	0	0	11½
Picric	"	0	0	11
Sulphuric (fuming 50%)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" " 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	7	6
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	"	0	1	1
Arsenic, white powdered	nett per ton	23	0	0
Alum (loose lump)	"	4	10	0
Alumina Sulphate (pure)	"	4	2	6
Aluminoferrous	"	2	3	6
Aluminium (Ingot metal 98/99¼ %	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	3
" 880=28° B.	"	0	0	2¾
" =24° B.	"	0	0	1¾
" Carbonate	nett	"	0	3
" Muriate	per ton	18	5	0
" (sal-ammoniac) 1st & 2nd	per cwt.	33	&	31/-
" Nitrate	per ton	32	0	0
" Phosphate	per lb.	0	0	4½
" Sulphate (grey) London	per ton	7	11	3
" (grey) Hull	"	7	11	3
Aniline Oil (pure)	per lb.	0	0	6¾
Aniline Salt	"	0	0	6
Antimony	per ton	30	15	0
" (tartar emetic)	per lb.	0	0	9
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	12	6
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	42/6 to 65/-		
Bleaching Powder, 35 %	nett	6	7	6
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	12	0	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	"	15/- to 30/-		
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	nett per lb.	0	0	6¾
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	6¾
Benzol, 90's	per gallon	0	1	7
" 50/90	"	0	2	0
Carbolic Acid (crude 60°)	per gallon	0	2	4
" (crystallised 40°)	per lb.	0	0	7¾
" (liquid 95/97%)	per gallon	0	1	1
Creosote (ordinary)	"	0	0	2
" (filtered for Lucigen light)	"	0	0	2½
Crude Naphtha 30 % @ 120° C.	"	0	0	11
Grease Oils, 22° Tw.	per ton	2	15	0
Pitch, f.o.b. Liverpool or Garston	"	1	2	6
Solvent Naphtha, 90 % at 160°	per gallon	0	1	8
Copper	per ton	48	17	6
" Sulphate	"	16	5	0
" Oxide (copper scales)	"	44	10	0
Glycerine (crude)	"	31	0	0
" (distilled S.G. 1250°)	"	62	0	0
Iodine	nett, per oz.	0	0	7½
Iron Sulphate (copperas)	per ton	1	10	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	13	2	6
" Litharge Flake (ex ship)	"	14	15	0
" Acetate (white ")	"	22	0	0
" " brown ")	"	15	5	0
" Carbonate (white lead) pure	"	16	15	0
" Nitrate	"	19	0	0
Lime, Acetate (brown) (ex ship)	per ton	5	0	0
" " (grey) (ex ship)	"	8	7	6
Magnesium (ribbon and wire)	per oz.	0	2	3
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Calcined Magnesia	per ton	9	0	0
" Sulphate (Epsom Salts)	per ton	2	15	6
Manganese, Sulphate	"	16	0	0
" Borate	per cwt.	2	10	0
" Ore, 70 %	per ton	3	10	0
Methylated Spirit, 61° O.P.	per gallon	0	1	8
Naphtha (Wood), Solvent	"	0	2	8
" " Miscible, 60° O.P.	"	0	3	3
Oils:—				
Cotton-seed	per ton	15	10	0
Linseed	"	16	0	0
Stearine	per ton	19	10	0
Phosphorus (yellow)	per lb.	0	2	2
" (red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
" Bichromate	nett per lb.	0	0	4½
" Carbonate, 90% (ex ship)	per ton	17	0	0
" Chlorate	per lb.	0	0	4
" Cyanide, 98%	"	0	0	11
" Hydrate (Caustic Potash) 90 %	per ton	24	0	0
" " (Caustic Potash) 75/80 %	"	20	15	0
" " (Caustic Potash) 70/75 %	"	19	15	0
" Nitrate (refined)	per cwt.	1	1	6
" Permanganate	per cwt.	3	15	0
" Prussiate Yellow	per lb.	0	0	5½
" Sulphate, 90 % (ex ship)	per ton	9	15	0
" Muriate, 80 % (do.)	"	8	10	0
Silver (metal)	per oz.	0	2	3½
Sodium (metal)	per lb.	0	2	11
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
" " (Caustic Soda-ash) 48 %	"	4	5	0
" " (Carb. Soda-ash) 48 %	"	4	0	0
" " (Alkali) 58 %	"	3	17	0
" " (Soda Crystals)	"	2	5	0
" Acetate (ex-ship)	"	12	5	0
" Arseniate, 45 %	"	15	0	0
" Chlorate	per lb.	0	0	4½
" Borate (Borax)	nett, per ton	16	0	0
" Bichromate	per lb.	0	0	3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	9	0	0
" " (74 % Caustic Soda)	"	8	2	6
" " (70 % Caustic Soda)	"	7	2	6
" " (60 % Caustic Soda)	"	6	2	6
" " (pure liquor 90° Tw.)	"	3	15	0
" " 77/78 % powdered (99 % hydrate)	"	13	0	0
" Bicarbonate	"	6	10	0
" Hyposulphite	"	5	0	0
" Manganate, 25%	"	15	0	0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	7	9
" Nitrite, 98 %	per ton	30	0	0
" Phosphate	"	11	0	0
" Silicate (glass)	per ton	4	10	0
" " (liquid, 100° Tw.)	"	3	10	0
" Stannate, 40 %	per cwt.	3	2	9
" Sulphate (Salt-cake)	per ton	0	19	0
" " (Glauber's Salts)	"	1	7	6
" Sulphide	"	6	13	0
" Sulphite	"	5	0	0
Strontium Hydrate, 100%	"	3	0	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	6½
" Barium, 95 %	"	0	0	4½
" Potassium	"	0	0	6½
Sulphur (Flowers)	per ton	7	10	0
" (Roll Brimstone)	"	6	10	0
" Brimstone: Best Quality	"	4	15	0
Superphosphate of Lime (26%)	"	2	15	0
Tallow	"	18	0	0
Tin Crystals	per lb.	0	0	0
" English Ingots	per ton	65	10	0
Zinc Spelter	"	17	0	0
" Chloride (solution, 150° Tw.)	"	5	0	0
" Sulphate, Crystal	"	5	5	0

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

524.

SATURDAY, JUNE 5, 1897.

Vol. XX.

Contents.

	PAGE		PAGE
Skein	377	The Kent Coalfield	383
ration of Raw India	378	Parliamentary Jottings	384
Anomalies	378	Answers to Correspondents	384
List	379	Trade Notes	384
Latest Complete Speci-	379	Tar and Ammonia Products	384
ies in France	379	Miscellaneous Chemical Market	384
Chemical Industry	380	Report on Manure Material	385
Foreign Chemical Trade	380	The Metal Markets	385
Trade of Foochow	381	Liverpool Oil and Colour Market	385
System	381	Hull Paint, Oil, and Colour Report	385
Tariff and Dyestuffs	381	West of Scotland Chemicals	385
Irwell Joint Committee	382	Tyne Chemical Report	385
Companies	383	New Companies	386
Co-operative Glass-	383	Imports	386
		Exports	386
		Prices Current	397

ADVERTISEMENT.

HYDRAULIC PRESSES for Sale, in first-
edition. 10 in. ram; working pressure 4 tons.—Apply, Brotherton and
Distillers, Leeds.

Notices.

Communications for the *Chemical Trade Journal* should be
sent by Post Office Orders made payable to—
DAVIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, to the
Trade Journal,—payable in advance,—including postage
of the world, are as follows:—

Half-yearly (52 numbers) 12s. 6d.
Yearly (26 numbers) 6s. 6d.
Quarterly (13 numbers) 3s. 6d.

Subscribers are invited to forward items of intelligence, or cuttings
of newspapers, of interest to the trades concerned.

Subscribers will oblige by making their remittances for subscriptions by
Post Office Order, crossed and payable to "Davis Bros."
Communications for the Editor, if intended for insertion in the
next issue, should reach the office not later than **Tuesday**

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let,
Wants, and Special Articles for Sale by Private Contract are
accepted in the *Chemical Trade Journal* at the following rates:—

Words and under 2s. 6d. per insertion
Each additional 10 words 6s. 6d.

Advertisements of Situations Wanted are inserted at one-half the
above rates when prepaid, viz.:—

Words and under 1s. 6d. per insertion
Each additional 10 words 3s. 6d.

Advertisements, Announcements in the Directory Columns, and all Adver-
tisements, are charged at the Tariff rates, which will be forwarded on

Advertisements intended for insertion in the current week's issue
should reach the office by **Thursday morning** at the latest.

THE TANGLED SKEIN.

THIS week has brought us an important announcement in
connection with the purification of sewage and works'
effluents, for the Mersey and Irwell Joint Committee have at
last been advised to consider seriously the advisability of
advocating artificial filters *vice* land *in forma natura*.

The Committee have seen for a long time that very little
progress could be made so long as the Local Government
Board's stipulations as to land filtration remained inflexible
and indefinite, yet they never took steps to place themselves
in a position to dictate to the Board on this point.

Now, however, their chemical adviser has advised, and
their chief inspector has supported him, to the effect that,
save in the few cases where land is available, artificial filters
are commendable.

Clear as this seems, however, at first sight, we are bound
to confess that we feel as if we were getting a little mixed
over the exact position.

Sir H. Roscoe, who was recently following the joint calling
of adviser to the Committee and consulting expert to the
Rivers Committee of the Manchester Corporation, conducted
a series of experiments on filters for the Corporation, which,
so far as we can learn, only gave such satisfaction to the
Corporation as to lead to the formulation of the culvert
scheme for taking the effluent out into tidal waters. In other
words, the Corporation could not see their way to working
the filters continuously so as to be sure of escaping prosecution
for pollution at the hands of the Joint Committee.

Having practically confined his attentions once more to
the old love, Sir Henry retails to the Joint Committee what
is substantially his report to the Corporation Rivers Com-
mittee, thus leaving that "cardinal point," the probable
duration of the efficiency of the filter as regards capacity and
purification still unsolved.

How far the Joint Committee have been benefited by their
adviser's advice, the Manchester Corporation are perhaps
best fitted to judge; but it does not need any insight into the
inner workings of the Corporation to make a very fair
estimate, for it is scarcely encouraging or helpful to be told,
within the space of a few hundred words, that "the adoption
of artificial filters is a move in the right direction, especially
in the case of large towns," to be followed in the next breath
by the statement that "it is when we have to deal with large
populations that the difficulty becomes great." And why?
"because data . . . on a large scale are yet wanting."
All this, coupled with the mystifying ambiguity on the "car-
dinal point" of maintained efficiency, only means that the
Committee, while advised to move in the right direction, are
told that they are taking a leap in the dark. It is rather dear
advice at £700 a year.

It is amusing to read that in the face of this halting here-
there-but-nowhere-in-particular report the Chief Inspector

says it has been clearly demonstrated that the effluents of large towns can be treated by artificial filtration. We thought this was where "the difficulty became great." It is pardonable for him to have thus committed himself, for Mr. Dibdin has stated that with a coke breeze filter, worked under certain conditions, "the life of the filter is practically without limit." The *crux* is maintaining the conditions.

A very reasonable effluent can be produced under ordinary conditions, only it will scarcely comply with the requirements of the Joint Committee, who seem to keep before them the one fact that their mission is to prevent pollution and purify the rivers, to the exclusion of any considerations as to feasibility. There is, of course, one very simple way of purifying the rivers, and that is to close all the works and have no effluents at all. The dogged attitude of the Joint Committee is, in comparison, as logically accurate, and as equally absurd from a practical point of view.

In effect, the position seems to be that in spite of his non-standard theories Sir Henry has fixed tentative standards for the Committee, which he has found he cannot work up to when acting on behalf of the Manchester Corporation.

As others have got satisfactory results by artificial filtration, we come back to the oft-reiterated statement that until the vacillating, hypercritical standards of the Committee are supplanted by reasonable demands, we shall always have the land bogey with us, and delays will be endless, because there will always be a loophole until the Committee can say unhesitatingly "We are only insisting on what is practicable, and it must be done." They can scarcely say so at present, in the face of the conflicting and confusing report on which they are trying to readjust their policy.

What it will all lead to is hard to say, and the majority do not seem to care. The affair has become too intricate for them, as it has for the Local Government Board; and the Joint Committee will find things the same for them if they keep on with this dog in the manger business much longer.

THE ADULTERATION OF RAW INDIA-RUBBER.

THE unsophisticated natives on the West Coast of Africa know how to adulterate their produce in a way that is perfectly astonishing, considering their slight contact with European civilisation. The trade in rubber is a brisk one. The various forms in which it is now used have caused the demand, for many months past, to keep ahead of the supply. This circumstance has probably fostered a practice which is rapidly bringing discredit on the rubber export business at Lagos. Not very long ago, a cask of rubber weighing 12 cwt. was brought to Lagos from up-country, and of this no less than 6 cwt. 5 lbs. consisted of stones, birdshot, and boiled cassava. The liability to get stones when one asks for rubber, naturally demoralises the whole business, and it is evidently one for interference on the part of the Colonial Government concerned. That this would be effectual is sufficiently shown by what occurred at Sierra Leone a few years back. The so-called Sierra Leone rubber, which up to that time enjoyed a high reputation in the European markets, began to deteriorate in quality in a most marked manner, owing to adulteration by the natives. In consequence of the severe competition amongst the merchants, no remedial measures were taken at the time, with the result that the quality of rubber became worse and worse, and after falling in value from 2s. to 1s. 4d. per lb., it became practically unsaleable in the European markets, and ruin threatened those engaged in the trade. The rubber obtained at Sierra Leone comes almost entirely from French territory, and eventually the French Government was induced to pass a law with heavy penalties against the buying or selling of adulterated rubber. There was a little trouble with the natives at first, and the trade fell off in quantity, but after that the supplies were normal, and so improved in quality that the article regained its ascendancy in Europe, with a value increased to 2s. 3d. per lb. It still maintains its comparative value, although, of course, fluctuating with the markets. The Manchester Chamber of Commerce has made representations to the Colonial Office, suggesting that legislation similar to that in force in French Guinea should be adopted in Lagos, and the subject is at present under the consideration of Mr. Chamberlain.

PATENT LAW ANOMALIES.

Why a "Default" is Not Contested at Law

WHEN Mr. Ritchie was asked in Parliament for an inquiry into the Patent Laws, and particularly into Section 22 (C. 1883, p. 142), he said he had yet to learn that this section was in need of amendment. The subsequent deputation to the Board of Trade did not enlighten him, but the Board would not consent to defray the cost of a "default" *re* the granting of licences. Their only remedy was to constitute a "default" if a test case was brought before the courts (C. T. F. 521, p. 330), but the following expert legal opinion was given:—

The actual words in which the counsel express their opinion are:—"We have considered the questions submitted to us by your petitioning the Board of Trade for a compulsory licence under the 22nd Section of the Act of 1883 in respect of certain patents for foreigners, and we advise you not to proceed with such a petition. The 22nd Section of the Act is one which has yet to be construed, and whoever enters upon the effort to construe it will be put to a large amount of trouble and costs. Every word of the section is open to contest as to its meaning. There are no decisions or precedents to guide in the construction of the section. So far as we know, no order has been made by the Board of Trade, and no serious attempt has been made to exercise the provisions of the section. The subject is one on

NO CASE HAS BEEN DECIDED,

and on which no opinion is expressed by the recognised legal authorities, so far as we know, by any of the ablest Counsel. Any person who must start with the knowledge that he is undertaking a serious and prolonged contest both as to law and fact. Patent litigation is only for the very rich or for the very poor, who are indifferent to the result of an adverse verdict or a prolonged contest. No person of good repute, but with capital fully required for the purposes of a contest, can afford to enter into any patent dispute according to the practice, especially against wealthy opponents, and more especially against a combination of wealthy opponents whose custom is to retain a standing retainer to all the Counsel versed in patent matters. A contest would have a contest both as to law and fact, you would calculate upon incurring very heavy costs, with great uncertainty as to the result. By your application you would have to prove to the satisfaction of the Board of Trade the reason of the default of the Patentee to grant a licence on reasonable terms you were prevented from working to the best advantage an invention of which you possessed. You would therefore have to establish that the invention was one which you possessed, and rightly possessed, which was a contest as fully elaborate and costly as an ordinary patent case, and which would probably involve the same expert evidence as that usually given in such contests. You would also have to establish that you could not work or use the invention to your advantage (whatever that may mean) without the licence desired,—which again would open up the same expert evidence as that usually given in such contests. You would also have to prove to the satisfaction of the Board of Trade, the expert power is discretionary on the part of the Board, and, if granted, absolutely discretionary as to the terms, and otherwise. It would be the subject of the conflict, and are at present almost unknown, so that you would be fighting with a certainty of heavy costs, and an absolute uncertainty as to the terms if you were in your favour. It might be that the order would be unacceptable to you, but which would be binding upon you to your detriment. If the Patentee neglected to obey the order, it would have to be enforced by an application to the High Court for a mandamus, when the whole matter could be re-opened and argued. In the case of a foreigner, out of jurisdiction, the application for a mandamus, if granted, is difficult.

NO SECTION PRESENTS MORE DIFFICULTIES.

In our judgment, no Section of an Act of Parliament presents more difficulties, and some other provision ought to be made to the purpose which was clearly intended, but which has not been brought into effect, been clearly effected."

No wonder, therefore, the point has not been fought out yet. It is a matter for the Government rather than an individual case would be put to great personal expense to benefit the public and educate our legislators. The boot should be on the other foot.

ARTIFICIAL ALMONDS.—A gentleman who has just returned from the States says that the latest Yankee craze is artificial almonds made from turnips, and covered with a coating of gelatin. Roasted they are stated to be undistinguishable from the genuine almonds, with synthetic perfumes, imitation fruits, and artificial horticulture bids fair to become a lost industry.

The Patent List.

is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally in the name of Chemical Patents.

CATIONS FOR ENGLISH LETTERS PATENT.

Using Boiler Disincrustants. D. N. Fleming. 12,224. May 18.
Ride of Aluminium and Soda. Comp. Gen. l'Alumine Soc. Anon. May 18.

of Hydrogen Peroxide. S. R. S. Rideal and Commercial Ozone Co., Ltd. May 18.

Removing Composition. J. N. Lyle. 12,281. May 18.

Blue. S. Herzberg. 12,376. May 18.

Batteries. G. Walker. 12,327. May 18.

of Ammonia, also other Compounds of CO₂ and Ammonium Bicarbonate. A. J. Bambridge and G. Weddell. 12,387.

Extract. S. Smithson. 12,399. May 19.

Inc. A. Apps. 12,422. May 19.

Aluminium. C. D. Jenkins. 12,442. May 20.

ing Tanning Liquids. P. G. Sanford. 12,450. May 20.

F. Cardell. 12,456. May 20.

of Sodium Chlorate. A. R. Davis. 12,534. May 20.

of Alkaline Solutions. H. P. M. Brunel. 12,544. May 20.

is-Works Refuse. T. F. Ennis and F. S. Green. 12,591. May 21.

Mills. C. Junge. 12,597. May 21.

suming Apparatus. V. von Pindler. 12,660. May 22.

and Application of Electricity and Manufacture of Salt. 12,665. May 22.

ers and Fuel Water Heaters. J. S. McDougall and A. Collier. May 22.

ing Machine. G. B. Hall. 12,743. May 22.

ACTS OF LATEST COMPLETE SPECIFICATIONS.

tracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

nts in Evaporating Brine and other Solutions and in us therefor. E. J. Duff and J. Brock. G. 11, Exchange Buildings. Eng. Pat. 14,951. July 6, 1896.

effect vacuum processes have been troublesome on account alty of removing the salt as deposited, and also the forma- its impairing the efficiency. This process aims at effecting tion in one vessel, and the separation of the salt in another, is passed through two heaters, and then falls in a spray tical cylindrical vessel fitted with baffling plates, and up rent of hot air passes. The brine becomes partially cooled down this vessel, and on being discharged into an open e bottom of the cylinder the salt deposits. The cylinder is tted, the condensed water being used to heat the air supply. are warmed by waste steam from this jacket also, and the ir from the spraying cylinder. The mother liquor from the ank is mixed with sufficient fresh brine to make up for the orated and pumped afresh into the heaters. The open he spraying cylinder dips far enough below the liquor in the to seal it against the pressure of the hot air. There are gs showing the complete plant in elevation and in plan.

and Apparatus for Drying Moist Materials. E. Stauber, e-strasse, Berlin. Eng. Pat. 9,665. May 6, 1896.

few to avoiding the risk of burning with direct heat, and s of steam heat, the material is first subjected to the flue the boiler in a revolving drum, fitted with oblique conveyor then taken by an elevator into a hopper, where it passes shing rollers into the second chamber, where it is passed s of steam-heated trays by endless belts carrying projecting apers. The steam pipe to the latter dryer passes through ue, and so the steam becomes superheated. There is one

nts in and Relating to Vapour Condensers and Apparatus troying Noxious Fumes, Recovering Bye-products from tion, and like Purposes. S. G. Merrick. 536 and 538, Philadelphia Pa., and H. L. Washburn, 280, St. Nicholas Avenue, New York. L. 12,572. June 8, 1896.

es are passed into a box divided into two parts by a ching nearly to the bottom. It is filled two-thirds full of frusto-conical metallic casing is fitted on a horizontal axis can be revolved partly in the water and partly out of it.

Being fitted with helical vanes, the gases and water are alternately taken in and discharged into the second compartment, whence any uncondensable gases escape to the flue or chimney. When the apparatus is working the pressure causes the liquor to rise in the second compartment, so that the apex end of the cone is completely immersed. There are four figures.

Improvements in Electrolysis. Graydon Poore, 9, Cowcross-street, London.

Eng. Pat. 16,852. July 29, 1896.

To avoid the inconveniences arising from the formation of bubbles on the plates in the process of electro-deposition, as carried on in the preparation of electrotypes, &c., the plate is caused to oscillate mechanically while a drum-pump draws the electrolyte from the bottom of the vat and discharges it through a fish-tail nozzle on to the plate. The electrolyte as it falls passes through a perforated tray, charged with the material dissolved in it, so that the strength is maintained. The nozzle and the plate form the terminals, and if convenient the nozzle can be made of the metal which is being deposited. Two figures illustrate the construction of the apparatus.

Improvements in Glover Towers, Gay Lussac Towers, and the like, for instance, in the Manufacture of Sulphuric, Muratic, and Nitric Acids. P. Jensen, 77, Chancery Lane, W.C. (Communicated by G. Lunge, 22, Englischtortel, Zurich, and L. Rohrmann, Krauschwitz, near Muskau, Germany.) Eng. Pat. 6,916. March 16, 1897.

This is a special brick for packing Glover towers, etc. A rectangular portion is removed from the middle of the brick, while round the space so formed a trough is made, the outer edge being higher than the inner. The outer edge then forms the bearing surface when the bricks are packed in, while the acid flows from the trough over the inner edge, falling through the central space on to the next layer of bricks. The proportions of the trough-like recesses are varied in each succeeding layer with a view of facilitating the even distribution of the acid. There are six figures.

ARTIFICIAL WINES IN FRANCE.

IN recent years the manufacture and sale of artificial wines in France, as well as the importation of foreign wines, have experienced such an extraordinary development that the genuine French article is now being driven out of the market, and wine growers and merchants every year find it more and more difficult, if not impossible, to dispose of their accumulating stocks of red and white wines of good quality. Considering, moreover, that the majority of French vineyard owners have, during the last 15 years, spared no trouble and (when they could afford it) no expense in combating the many vine diseases, and, if necessary, in replanting the devastated vineyards, and that the sacrifices thus made are, to all appearance, certain to bear good fruit in the future, and will, at a not too distant date, bring to France a return of her former abundant wine production, it is evident that the gradual flooding of the markets of France and also foreign countries with foreign or artificial imitations of French wines must create considerable dissatisfaction amongst both vineyard owners and wine merchants in Bordeaux and other prominent wine-producing districts of this country. The French Government have, during the past year, in consequence, been strongly urged by the wine merchants and vineyard owners of the Gironde and other departments to apply the existing laws against fraudulent imitation of wine in a more vigorous manner, and in the interest of the honest trade to increase their stringency; and it has further been requested to take steps for raising the import duties on Spanish wines (and any other foreign wines not taxed so highly). A project of a new law dealing with this subject was submitted to the French Chamber last autumn, and passed, after certain modifications had been introduced.

FORTHCOMING PUBLICATION.—Messrs. Whittaker & Co. will shortly publish a work on "Organic Chemical Manipulation," on which Dr. J. T. Hewitt, of the East London Technical College, has been engaged. The first part of the text book will give an account of the methods adopted in organic analysis and the determinations of molecular weights, the second part being devoted to a typical set of organic preparations, systematically arranged, and intended to give an idea of the methods adopted in organic work.

THE FALLS OF FOYERS.—There is a general belief that the operations of the Aluminium Company in the vicinity of Loch Ness have destroyed the celebrated Falls of Foyers. This is altogether a mistake. The correspondent of a Northern paper avers, at any rate, that though he has visited Foyers and the Falls many times during the past 30 years, he has no recollection of ever having seen them to better advantage than at the present time. The aluminium works are now fully established, and in ordinary weather there will be a sufficiency of water to render the Falls as attractive to visitors as they formerly were.

SOCIETY OF CHEMICAL INDUSTRY. NOTTINGHAM SECTION.

THE seventh and last meeting of the session of the above section, was held on May 26th (by invitation), at the residence of Dr. Clowes, The Park, Nottingham, the chairman, Mr. F. J. R. Carulla, presiding. Amongst those present were Mr. Thomas Tyrer (London), past president; Professor Carr, Dr. Sudborough, Mr. J. O'Sullivan, of Burton (chairman-elect); and Messrs. Adams (Derby), Caven, Forth, Golding, Johnston (Newark), Lott (Burton), Meggitt (Mansfield), Paton, Pentecost, Stafford, Ward, Wood, and others.

Mr. Jos. T. Wood read a paper on "A pure cultivation of a *Bacillus* fermenting Bran infusions," which he explained was written in collaboration with Mr. W. H. Willcox, B.Sc., and in continuation of their previous paper on "The Nature of Bran Fermentation, as applied in the manufacture of light leathers" (J.S.C.I., vol. xii., p.422). It may be mentioned that in the paper referred to, the bacillus in question was provisionally named *Bacterium Purpuris*. It appears that the authors have obtained two kinds of colonies by a special method of cultivation. The majority are round, yellowish, and of small size, a smaller number spreading out on the surface of the gelatine, and being slightly iridescent. They think it nevertheless probable that the organisms are identical, the two being only varieties of each other. The paper dealt at great length on the products of fermentation from drenches prepared with this organism, special attention having been given to the volatile acids—lactic, formic, acetic, and butyric—and also to the gases. In the latter connection the evolution of free nitrogen from the fermentation places this bacterium in a class out of the ordinary. The details described represented the work of several years in Sir John Turney's laboratory, and the paper was illustrated by lantern projections and microscopic slides.

Mr. J. O'Sullivan opened the discussion, saying, in the course of his remarks, that there would be some difficulty in keeping such a fermentation pure.

Mr. Golding said that, as an agricultural chemist, he should like to thank the authors of the paper for the work they had done. He knew of organisms that could assimilate free nitrogen, but the fact that there were other organisms capable of liberating it was new to him, and he thought the matter deserving of further attention.

Mr. Lott agreed in thinking this deserved attention, as if there were in the soil organisms having a denitrifying effect they might undo the work of those that aided the agriculturist. Another direction in which the investigations of the authors were evidently of service was in connection with the subject of bakers' yeast. We have some practical knowledge of the matter, but very little scientific knowledge that is of value in relation to the process. This is again a case in which the work of the chemist and of the microscopist may be combined with advantage.

Mr. Thomas Tyrer said this was a subject he did not pretend to understand, except in the sense that it appeared to have been treated by the authors in a practical, honest, and conscientious manner. He confessed that he had not read the previous paper until he received notice of this meeting. After reading it, however, he was compelled to admire the industry of Mr. Wood, who found time for such investigations, engaged as he was with other matters connected with the commercial part of the business. He might mention that an interesting article from the *Board of Trade Journal* would be found in the forthcoming number of the society's journal, descriptive of the work of a tanning school on the Continent (*vide C.T.J.*, 522, p. 350).

Dr. Clowes was very glad to add his congratulations to those that the authors had already received. From personal knowledge he could say that Mr. Wood was a most scrupulous and accurate worker. He fully sympathised with all that Mr. Tyrer had said in reference to the general indisposition to communicate the results of technical research, and he thought that gratitude was also due to Sir John Turney for taking so broad a view as to allow the work of years in his laboratory to be communicated to the section and published in the "Journal" of the society. (Applause.)

Dr. Sudborough, in the course of his remarks, said he thought these researches indicated that there is as great a future before the tanning industry as there was a few years ago before the brewing industry.—Mr. Wood shortly replied.

Professor Carr then spoke on the subject of the organisms found in the root nodules of leguminous plants, a subject on which Mr. Golding is conducting experimental work at the University College.

Mr. Golding showed lantern slides, microscopic slides, and growing plants illustrating the subject, which he further explained, and also exhibited a series of views showing the necessity of nitrogen to vegetation. The slides had been prepared to prove the benefit of chemical manures for farm crops. The specimens from which the photographs were taken had been grown in pots filled with sand, and the various manures (chemical) were added to this infertile soil, so that the copious growth exhibited by the plants could only be due to the manure, the plants in the pots with sand alone being quite stunted. Mr. Golding

thought the subject might be of interest at a time when sulphuric ammonia could be obtained so cheaply.

Thanks having been accorded to the various speakers and to Clowes for his hospitality, the retiring chairman (Mr. Carulla) said much of the success of the past two years was due to their hon. sec., J. T. Wood, and he also thanked the readers of papers who had forwarded so continuously as to have filled up any date during the sessions. After the conclusion of the formal business the meeting resolved itself into a social gathering.

NOTES ON FOREIGN CHEMICAL TRADE.

[SPECIALLY CONTRIBUTED]

DUNKIRK.

IN reviewing the movement of trade and commerce at the port of Dunkirk during last year there are several items of interest noted. Among the imports—

Oleaginous seeds ranked as the second largest import. The total 179,996 tons (a reduction of 7,463 tons), of which some 78,000 were from British India, 50,000 tons from Russia, and 33,000 tons from Argentina. The condition of the oil industry has been less satisfactory than it was in 1895, and although much the same quantity of seed has been crushed, it is feared that, on account of the sluggishness of the trade, the production of vegetable oil will soon have to be reduced. The oil continued to fall in value, although the price of seed kept relatively high, owing to the poor harvest in India. It is said the vegetable oil industry is in a languishing state, as it is difficult for it to compete successfully against the increasing use of cheap mineral oils.

Nitrate of Soda ranks as the heaviest import; it increased 11 tons, the actual figures being 189,373 tons against 170,749 tons in 1895, all imported direct from Chili.

The export of *Natural Phosphates* continues to decrease; nearly 100,000 tons went to the United Kingdom, the export to Germany being trifling. The total for 1896 was 15,196 tons, against 22,810 tons in 1895.

BORDEAUX.

Resin and Turps.—A diminution took place in the production of resin and turpentine, owing to the very damp season, and it was estimated at one-tenth less than in 1895. Prices, nevertheless, remained stationary, because the United States had a very heavy output, inundated the European markets.

French exports were normal. The stocks existing at the close of 1896 were not very important, and only sufficient to last the few months, during which the production is practically nil. The undistilled materials were sold at very low prices, and producers consequently had a bad year, and considerable want has been the consequence in the Department of the Landes where most of the resin and turpentine is produced. There was a good demand for turpentine for export, as well as for the superior qualities of resin.

Fert. lizers.—French agriculturists continue to use phosphates and other artificial manures, and evidently find it to their advantage to do so, large importations having been made in 1896, independent of the quantities made in France.

Dye-woods.—A slight increase in the imports of dye-woods took place in 1896, principally from French Guiana and prices generally about the same as at the end of 1895. Several arrivals of Venezuela of logs of boxwood, mahogany, ebony, and other fine woods took place, and were disposed of advantageously. A market for these appears to be offered at Bordeaux, and shippers of Venezuela appear to be inclined to take the matter up seriously.

From the return of the principal articles imported into Bordeaux in 1895-96, we select the following:—

	1895.	1896.
Indigo..... cwt.	1,113 ..	2,011
Manures "	1,609 ..	2,749
Copper Ores "	71,190 ..	20,044

The exports to the United Kingdom include the following items:

	1895.	1896.
Chemicals..... cwt.	204,283 ..	150,125
Paper "	9,773 ..	8,856
Resin "	34,702 ..	32,348

BR&ZILS.

Cement.—Large quantities of "Portland" cement (4,788 barrels in 1896) are imported into Rio Grande do Sul, but all the barrels are of German and Belgium marks. The prices per barrel, averaging 1½ to 1¾ cwt., vary from 10s. to 11s. 3d., according to quality and quantity on the market and the rates of exchange also have an influence on the price.

—The importation of candles is large, amounting to over 100,000 in 1896. There are five brands which almost monopolise the trade. Two are manufactured in Holland, one in Belgium, the third in France. Of the Belgian manufacture is an imitation of German origin. Sample packets of the candles, with all particulars, have been forwarded to the Chambers of Commerce. Samples of native candles are not obtainable owing to high duties on the imported article, the latter not being equalled at the same price.

MONTE VIDEO.

Varnish.—Great Britain enjoys an uncontested supremacy in linseed oil, and imports £1,402 out of a total of £16,861. She is second in Germany for the supremacy in paint. She has a close rival in Germany for wire for fencing, but has a strong lead so far; she also supplies all the varnish. Germany supplies almost all the earthenware and iron pipes and some to the country, as well as nearly all the pig iron, iron plates for roofing, and tin plates.

Germany supplies three times as much printing paper as any other country. Great Britain is only third in this article, and Belgium

Is and Fertilizers.—In sulphate of copper and in soda Great Britain is the monopoly. She is second in Roman and Portland cement, Germany being first, Belgium third. In various articles and materials that are imported free of duty, Great Britain has out of a total of £58,790, no less than £43,594. In horns, bone-ash, and hides Great Britain is the principal buyer. In hides she is second to

Germany. It is assured by competent persons that British goods enjoy the same reputation in this country, always provided that the quality and price are not those introduced by other countries.

PETROLEUM TRADE OF FOOCHOW.

Articles imported into China through Foochow, kerosine is the one that calls for most attention. A resident merchant stated last year that the tea trade was in such a decadent condition, that it was not worth British merchants, who wished to keep their heads above water, to devote themselves to it. His opinion was that article. His firm has erected large store houses on the opposite side of the river for the storage of oil. Their example has been followed by the importers of kerosine, who are building tanks and go down in the same mode.

Another feature under this heading is the establishment by a company of extensive go down accommodation for the storage of oil which is brought up from Hong-Kong in bulk, and put into tins on board the steamer. This vessel has patent fillers and cappers for closing the tins. The work is done very expeditiously, the 12 fillers on the steamer being able to fill 15,000 tins per diem of eight hours. This business is in connection with the Russian Petroleum Syndicate, who supply oil direct from Batoum in bulk. There must be considerable skill in the method of handling the oil; the tins for it are made here, the tin-plates being imported from home; labour is very cheap, the workmen appear to have learnt the use of the machinery. All the American oil imported here is packed two tins to a case, but the Russian oil packed here is sold in tins only, the cost of the case. There is a considerable demand for this part of the country, and the import figures show a steady increase, year by year, as shown below:—

...	American	...	544,950
...	Russian	...	1,381,510
...	Sumatra	...	15,000
			1,941,460
...	American	...	577,870
...	Russian	...	1,475,995
...	Sumatra	...	55,000
			2,108,865

In 1894, the imports have been nearly doubled, and yet in many parts of the country, kerosine oil is not used, and is probably unknown. Therefore, no reason why the imports should not go on increasing for some years yet.

ORDINARY FATAL EXPLOSION.—Last week, Matthew, a man seventy-eight years of age, was engaged cutting some pipes, which had been used to convey washings from the nitro-mill at Ardeer Factory, Stevenston, when an explosion took place which killed him instantly. The pipe had been carefully examined, and it is supposed that some nitro-glycerine remained in it, and of the pipe exploded it.

THE METRIC SYSTEM.

SCIENTIFIC men, manufacturers, and merchants will be interested in the announcement that Mr. Ritchie has introduced a Bill to legalise the use of the metric system, and hopes are raised that a complete reform of our antiquated weights and measures may not be long delayed. Advocates of international uniformity will have their views strengthened by the experience recorded on Thursday last week by Capt. Sankey, R.E., in a paper on "The decimal system in engineering measurement," read at the conference of the Institution of Civil Engineers. To enable English-made and foreign-made parts to be interchangeable, Messrs. Willans and Robinson, in May, 1893, introduced the metric system into their works, with the result that "no difficulty has been experienced in getting draughtsmen to use the new measures. No serious mistakes have been traceable to the change, and very few minor ones. The draughtsmen are practically unanimous in favour of metric measures, finding it easier to design, to check, and to read millimetre drawings. The men preferred the old system at first, the new figures conveying little idea of size, but they are now much in favour of the millimetre, and find drawings so figured easier to read." This conclusion was supported by Mr. Alexander Siemens, who made a vigorous defence of the metric system, the use of which he considered essential to foreign trade. He described the introduction of the system into Germany in 1869, at which time it was foreign to the Germans. Dr. J. Hopkinson (the chairman) thought that reformation of our chaotic state of units was inevitable, and "if we are going to reform at all, why not 'go the whole hog' and adopt the metric system?" Finally a resolution was unanimously passed to the effect that the Conference approved the legislation for the optional use of the metric system.

THE U.S.A. TARIFF AND DYESTUFFS.

A SERIOUS complication appears to have arisen in the United States with reference to the clauses in the Dingley Bill relating to dyestuffs. The representatives of the leading importers and manufacturers have protested against the Bill as it left the House of Representatives, and also against the amendments of the Senate Committee. The former included in the free list "alizarine, natural or artificial, and dyes derived from alizarine or from anthracene, including naphthazarine black." It was the concluding words against which the colour manufacturers made the strongest protest, with the result that they were struck out and the words substituted: "And all fast black coal-tar dyes." This, it appears, is almost equally objectionable to the importers and manufacturers as the original special provision for naphthazarine black. They declare that it is impossible to determine what dyes are fast, because no test for fastness is provided, neither is it easy to define one because the test varies according to the use that is to be made of the dye. Representatives of the importers declare that years of litigation would be required to secure a judicial determination whether any given colour was fast, and that every new colour offered at the Custom-house would have to be subjected to the same long process of determination. They say that the result of such a provision would either be to admit all blacks free of duty, or shut them all out, or else to admit the blacks of a particular firm, which was the effect of the House provision. The striking out of the word "fast" has therefore been recommended. The importers are said to be all in favour of erasing the word except one firm, which, apparently, has enjoyed a practical monopoly under previous tariff laws. The Senate Committee, it is added, at one time proposed to incorporate in the Bill a provision for making free of duty all black dyes dyeing mordanted wool, fast to milling, fulling, and light. This would have exactly described the black which was provided for in the House Bill under the title of naphthazarine black, but would not have described other blacks which were fast to other tests. The importers would like to have another change made by the substitution of the word anthraquinone in place of anthracene, in both the House and Senate Bills. They regard anthracene as too sweeping a term, and as opening the gates too wide for the admission of the materials from which dyes are made. The chemical schedule provides a duty of 25% under the Senate amendments upon coal-tar dyes or colours, and 15% upon other products of coal tar. The importers are willing to have these other products made free of duty, preferring that to the proposition to increase the duties on coal-tar dyes. There has heretofore been a margin of 25% between the former products and the dyes, and the importers wish to have that margin retained. They do not desire further protection, but would like to have the duty on the simpler products wiped out. If in its fiscal legislation the American Congress is to enter into all the niceties of the nomenclature of modern organic chemistry, the new Tariff Act will be an appalling document.

MERSEY AND IRWELL JOINT COMMITTEE.

A MEETING of this Committee was held on Monday at the offices, Mosley-street, Manchester. Mr. Alderman J. Thompson presided. In the report of the Finance Sub-committee there occurred the following passage:—"Your Sub-committee have considered a statement from the Local Government Board requiring payment of the sum of £25. 13s. 1d. on account of expenses incurred by the Board in holding inquiries into the application of the Joint Committee for leave to take proceedings against certain manufacturers for offences against the Mersey and Irwell Joint Committee Act, 1892. Having regard to the expenses which the Joint Committee have already had to bear in these cases, your Sub-committee are of opinion that the costs now demanded by the Local Government Board ought to be defrayed by the parties proceeded against, and they therefore recommend that the clerk be instructed to write to the Board objecting to their payment, and urging the Joint Committee's views with regard to this matter, and desiring the Board in these and future cases to demand payment from the manufacturer concerned."—This was adopted by the Committee.

EFFLUENTS FROM WORKS.

Reports were made with regard to the effluents from the works of a number of private manufacturers, and these were dealt with by the Committee.—Mr. Levinstein, of Crumpsall, appeared before the Committee with regard to the effluent from his establishment.—The Chairman said that the things complained of were the effluent of solid matter and of colouring matter.—Mr. Levinstein suggested that as the Manchester Corporation had a culvert near, the effluents might be allowed to pass into it.—The Chairman said that solid matter could not be allowed to go into the culvert, and that in any case Mr. Levinstein would have to put himself into communication with the City Surveyor.—Mr. Levinstein said he thought he could guarantee that practically no suspended matter of a deleterious character should go into the sewer.—After Mr. Levinstein had retired, the Chairman said that he was glad to say that the City Surveyor had come to the conclusion that, with the reservations as to the prevention of the entry of deleterious matter, no harm would result if the effluent went into the sewer. While the Committee carried out to the full their duties with regard to purification, he felt sure that at the same time they were anxious not to press unduly on manufacturers, and so drive manufactures from the district.—(Hear, hear.)—The Committee agreed to suspend action in this matter for two months, in order to allow Mr. Levinstein to come to terms with the Corporation.—The Consulting Sub-Committee made reports dealing with the sewerage works and the state of the outfalls at Chadderton, Hayfield, Marple, Westhoughton, Gorton, Droylsden, Stalybridge, Wilmslow, Whitefield, Limehurst, and Glossop.—The Stalybridge Corporation asked for an extension of time for the completion of the sewage works for six months, which was agreed to by the Committee. Extensions of time were also granted in the majority of other cases.—Sir H. Roscoe, the Sub-Committee stated, had reported on 55 samples of sewage effluent, which had been submitted to analysis. Of these he reported that 28 were good, 9 fair, 9 unsatisfactory, and 8 bad. Of the bad samples, one came from Hyde, two from Salford, and one from Bolton, all of which authorities were at present under orders of court. The Sub-Committee recommended that the clerk should be instructed to write to the remaining five authorities asking what steps they intended to take to improve the treatment of the sewage.—This was agreed to.

REPORTS ON ARTIFICIAL FILTRATION.

Sir H. Roscoe, in a report on "the efficiency of the results obtained in the treatment of sewage by precipitation and artificial filtration," said he was of opinion that the adoption of artificial filters was a move in the right direction, especially in the case of large towns, which had difficulties in acquiring a sufficient area of land of a suitable character for the purification of its sewage. Land filtration, so far as the chemical results were concerned, excelled the results of artificial filtration. Unfortunately, however, the volume of effluent that could be treated permanently on land was limited as compared with the volume that could be filtered by artificial filters. "I have had," Sir H. Roscoe continued, "the advantage of carrying out important trials, extending over a period of seventeen months, with filters made both of cinders and of coke, for the Rivers Committee of the Manchester Corporation, and the results have been of a satisfactory character. The effluent submitted to filtration had previously been treated with milk of lime and copperas. The volume of such effluent, that an acre of filter was able to deal with continuously, was about 800,000 gallons per day. It remains, however, to ascertain how long these filters will work satisfactorily before requiring renewal of a part or the whole of their contents, and this is a cardinal point." Artificial filters had, he pointed out, in some instances been adopted at sewage works under the jurisdiction of the Committee, and the failures which had attended their use were traceable to the non-compliance with the conditions which were

essential for successful and permanent purification. There was conversion of the organic carbon and of the organic nitrogen organic matter of the sewage into inorganic matter. They had been recognised and advocated, but generally ignored in practice. H. Roscoe dealt with the researches of Messrs. Muntz and Sch in France, of Professor Warington in this country, and of the American chemists of the Massachusetts Board of Health. He added the main difficulty of the subject did not lie with the smaller authorities. Of the 54 authorities reported upon (as given) this month, all of satisfactory cases, with the exception of Oldham, were those of authorities, and in these land filtration (16 cases), or artificial filtration (19 cases), or tank precipitation alone (2 cases), had yielded a satisfactory result. It was where we had to deal with large populations that the difficulty became great, because the data for basing conclusions as to the practical and permanent efficiency of artificial filtration on a large scale were yet wanting. To obtain such data, he thought the Rivers Committee of the Manchester Corporation to carry out artificial filtration on a considerably larger scale than had hitherto been the case.

Mr. R. A. Tatton, the inspector to the Committee, reported the total number of authorities using the method of treatment by precipitation and filtration at various works in the watershed represented a population of about 172,000, and the results obtained, as given in the analysis of samples taken, were satisfactory in about 86,000 half of the total. That seemed a small proportion, but if the results were looked into it was evident that the filters which had failed had little chance of success from the outset, either in consequence of the tank effluent which was put on them being insufficiently treated, in consequence of the filters being badly constructed or managed, or in consequence of the area being too small to deal with the volume of sewage. The experiments on a considerable scale had been made by Sir Henry Roscoe at the Manchester works, Didsbury in London, and by Mr. Corbett in Salford, clearly demonstrating the possibility of treating the sewage of large towns by artificial filtration if a sufficient area of filter beds was used. There seemed, therefore, to be ample evidence to show that, if filters were constructed to conform with the principles which had been laid down, satisfactory results may be obtained. It was, however, necessary not to lose sight of the fact that if suitable land was obtainable, filtration through soil was the most permanent and satisfactory method of treatment. Alderman M'Dougall, in the course of a short discussion on the subject, drew attention to what he thought the apparently contradictory results in which, while Sir H. Roscoe had stated that the length of time in which these filters would work was a cardinal point, Mr. Tatton observed that the experiments clearly demonstrated the possibility that kind of treatment if a sufficient area of filter beds was used. M'Dougall was frequently interrupted on the point whether it was permissible to discuss the report. He said that in Manchester he had found that filters of this description, when laid down, holding capacity of 1,700 gallons, had, seven months after installation, holding capacity of 1,300 gallons only.—Mr. Tatton said that no contradictory inference could be drawn from the two, and he certainly had not intended to use terms which would lead to such an inference.—Dr. Hewitt, who moved that the report be referred to the Consulting Sub-committee for their consideration and pointed out that if the committee were to go to the Local Government Board armed with this report from Sir H. Roscoe, they might be able to get the Local Government Board to take a more favourable position of such places as Salford, with regard to which the Board insisted on a costly scheme of land filtration.—Dr. S seconded the motion.—Mr. Alderman Jenkins added that he was such a result as that hinted at by Dr. Hewitt would be all right. The Local Government Board insisted on such a scheme for Salford would necessitate an additional expenditure of some £80,000, that, he felt certain, would in the course of a few years be repaid by the land to carry out the present requirements of the Local Government Board.—The motion was adopted.

Sir H. Roscoe and Mr. Tatton reported on the works of filtration in the district of Milnrow and Rochdale, and stated that in the filtering area was insufficient, and ought to be extended considerably.

FIRE AT AN ALKALI WORKS.—On Sunday morning, about 10 o'clock, a fire broke out in a drying shed at the Vine Chemical Works, Widnes, belonging to the United Alkali Company, Limited, was discovered by the night watchman to be on fire. He at once raised an alarm, and the Widnes Fire Brigade, under Superintendent Carr, were quickly in attendance with their fire engine. The staple manufacture of the works is nitrate of soda. The flames quickly extended to adjoining sheds. Despite the efforts of the brigade, three sheds were destroyed, together with a large quantity of machinery and valuable manufactured products. The fire was not extinguished until after eight o'clock. The damage was estimated at £3,000. to £4,000., and is partly covered by insurance.

Reports of Companies.

SANTA RITA NITRATE CO., LTD.

Report of the directors for the year 1896 states that the net profit together with the sum of £5,546, brought forward from 1895, total of £9,623, from which provision has to be made for the interest and amortisation of debentures. In view of the uncertain state of the nitrate market, the directors consider it more prudent to defer the payment of a dividend, and to strengthen the company's position by forwarding the available balance. The past year has included a period during which the company has had to make the trial of the combination regulations, the expense of which has fallen very heavily upon the company's profits. It is to be hoped that the recurrence of these trials will be avoided in the future. Since the year 31 a further sum of £1,100, has been spent on new machinery, the productive and economical capacity of the officina have materially increased. The acquisition of the new Carolina has more than realised the expectations formed of it. The company's productive quota has been doubled, and the directors have reason to believe that with a revival in the nitrate trade, the directors will reap very considerable benefit from the large and additions which have been made to the company's property.

SAN SEBASTIAN NITRATE CO., LTD.

Annual general meeting of this Company was held last week at the House, E.C., Mr. Alex. R. Robertson presiding. In the adoption of the report, the chairman regretted that the results were so very unsatisfactory, showing much less profit than had been expected when he last addressed them. In the first part of the year the nitrate remained pretty firm, and they were able to pay a dividend of 2s. per share last July. Prices were then about what everyone expected that they would be kept up on account of the combination which had then been entered into. Owing, however, to the unfortunate clause in the agreement—that should prices rise action should be increased—they found themselves in

AN ABSOLUTE DEADLOCK

an absolute deadlock, and the consequence had been that instead of prices rising they kept falling. Unfortunately, too, the consumption had not been as large as they had hoped, but they were quite justified when they pressed them in intimating in their report that everything tended to better prices. The clause to which he had referred, which he

A GREAT BLOT ON THE COMBINATION,

light from this end by the English companies from the cement. It was certainly a great mistake, but he was sure that within the last few days some reason had been fully entered into the minds of the gentlemen out on the coast, meeting was being held that day to consider the question of reducing the output (which he thought would be agreed to) they could hope to realise better prices. He regretted that that clashed with their own, as otherwise he should have attended to report anything like a reduction in the output and anything could produce higher prices. The price that day on the coast, according to a telegram they had received, was 5s. 3½d. They had a claim against the Chilean Government for about £1,000, but they had it well to write it off practically, keeping it at a merely nominal value. When the revolutionary war was being carried on a gentleman in Chilean uniform came to them and took from them their mules, numbering 170 odd. Their manager asked for and obtained £1, and subsequently they put in a claim for what they considered was due for the animals—the price they had themselves to pay for the mules and mules they had to put in the place of those which had been taken from them. Last year this company paid the Chilean Government £15,000, in duties on the export of nitrate alone, and the commencement of the company they had paid to the Chilean Government £250,000, in duties; but they themselves could not obtain £1,000, for the mules and horses which had been taken from them. Mr. G. M. Inglis seconded the motion, which was

DIVIDENDS.

PACIFIC BORAX AND REDWOOD'S CHEMICAL WORKS (LTD.).—The report for the year ended March 3 states that the net profit amounted to £57,236, and, after deducting debenture interest and interim dividend paid in November, there remains a balance of £50,000. The directors propose to place £4,000, to reserve depreciation account, to carry £9,000 to reserve account, to pay a final dividend on ordinary shares, making in all seven per cent. for the year, to pay the whole of the preliminary expenses, and to carry forward

THE NITRATE PRODUCERS' STEAM SHIP COMPANY (LIMITED).—The report for the year ended April 30 shows a net profit of £12,630, and, after deducting the interim dividend at the rate of 7½ per cent. per annum, paid in October, a balance of £10,142 remains. The directors propose a final dividend at the rate of 7½ per cent. per annum for the last six months. £6,500, has been carried to reserve, and a further one-third of the preliminary expenses, amounting to £209, written off, leaving £443, to be carried forward.

COLLAPSE OF A CO-OPERATIVE GLASSWORKS

SOCIALISM THAT DID NOT PAY.

DISCONTENT appears to be rife among the members of the co-operative glassworks of Carmaux. This experiment in practical Socialism on a larger scale than has yet been attempted appears to be only a moderate success. The works have already been open more than a year, and still M. Resseguier, the hated capitalist master of Carmaux, has not closed his works. The Socialist works started with tremendous advantages—a free gift of £4,000, subscriptions, and the proceeds of a lottery, making altogether a capital of £20,000. There was to be no capital, no master, but only workmen directors elected from time to time by their comrades. This family has been anything but a happy one. On Wednesday last week, 40 workmen left the co-operative works and asked the tyrant Resseguier to take them back. They say that several months' wages are due to them. The whole capital of £20,000, is eaten up, and the works are not yet finished. The society is heavily in debt. Misery is appalling, and the workmen's wives are begging in the streets. In a proclamation to their comrades, in which these assertions are made, the 40 penitent Socialists say that the workmen directors are responsible for this situation, and also that fraternity does not prevail among the workmen. "The undersigned," the proclamation concludes, "having lost all their illusions, feel bound to bring the foregoing facts to the notice of the working-classes."

THE KENT COALFIELD.

IN the course of a paper bearing the above title, read before the Institute of Civil Engineers at the annual meeting held last week, the author, Mr. Etheridge, said it was now believed by most, if not all, geologists that an extensive and valuable coalfield exists in the south-east of England or near Dover, which would in all probability be opened out and fully established. The horizontal bedding of the coal measures were of the most perfect description, the strata passed through being horizontal and regular. They believed that the area tested by the shaft showed that the conditions were altogether favourable for economical working. The opening-out trial of either of the upper coals would readily settle the important question of the lie of the coal. A long and animated discussion followed, a great part of which was devoted to personalities arising out of the claims of Professor Boyd Dawkins and others to the distinction of having been the first discoverers of the coal bed. Mr. Emerson Bainbridge, M.P., said in the promotion of the scheme there were five strong difficulties in the way. The first was that there only seemed to be one seam to be worked, the other lower seams being of less thickness. The second was as to the quality of the coal, the third the water difficulties; the fourth the doubt as to the continuity of the seam (a fact which could only be proved by boring); and lastly the inclination of the seams. He thought it very desirable that they should put down a shaft, so that daylight should be let into the matter. Mr. Griffiths, one of the engineers, said he considered they had at least 18 ft. of workable coal. The seams varied from 2 ft. to 4 ft. in thickness, but were all workable. Thin seams were worked both in Yorkshire and Durham, and in a colliery in North Wales with which he was connected the thickest seam was 2 ft., and the coal was worked at a profit. If that could be done in North Wales certainly it could be done in Kent, where they were much more favourably situated. As to the other objections as to price and continuity, he could only say that there was every indication that they were right in their estimate. Mr. J. B. Simpson said he thought there was no great engineering difficulty. He could have wished the find of coal in Kent to remain in abeyance for about 50 years, till he had got his north-country coal sold (Laughter.) He considered there was no difficulty in working thin seams. They were working these in Northumberland, and there was no reason why the seam of 2½ ft. thickness should not be worked in Kent. Mr. H. Bramall said if the coal was of satisfactory quality the thin seams could be profitably worked; and Mr. J. Gerrard expressed the same opinion, and thought the development of the coalfield in Kent would be sure and certain.

Parliamentary Jottings.

ADULTERATION OF FOOD AND DRUGS.

In the House of Commons last week, Mr. Dillon asked the First Lord of the Treasury when the sale of Food and Drugs Bill would be introduced.

Mr. Balfour: My right hon. friend the President of the Local Government Board informs me that the Bill will be introduced this session, but I do not imagine there is much chance of its passing into law.

Mr. Dillon asked the right hon. gentleman if he could not undertake to pass the bill this session, inasmuch as two Irish Bills had been dropped, and the time could be devoted to dealing with this Bill.

Mr. Balfour: I am afraid I cannot add anything to the statement I have already made. Of course, if it should be found there was universal enthusiasm for this Bill, something might be done.

ANSWERS TO CORRESPONDENTS.

C.L.—We are doing what we can for you in the matter.

X.Y.—They are no use. You should keep the others, however, as they are valuable.

W.—Our arrangements are now completed, so that we are not open to consider the matter further.

A.F.—We are obliged.

LUX.—It is a matter for your own judgment. It promises well, and we know enough of it to be able to say so, but that is all we can say.

QUERY.

A correspondent asks us for the names of makers of Epsom Softener. Communications can be sent to the *Journal* Office, addressed to "Query."

Trade Notes.

FATAL FIRE AT A CHEMICAL WORKS.—A fire broke out on Thursday, this week, in the works of the Chemische Fabrik vorm. E. Schering, Berlin, through an accident involving the breakage of a number of carboys of nitric acid. The chemicals gave rise to poisonous fumes, by inhaling which ten firemen were rendered seriously ill. One of them has already died.

THE WILL OF THE LATE MR. BEAUMONT TAYLOR.—The will of Mr. Henry Beaumont Taylor, of Ravensdale, Edgerton, Huddersfield, and of Market-street, Huddersfield, and the Logwood Grinding Works, Rashcliffe, Huddersfield, drysalter, who died on the 22nd of February last, leaving personal estate valued at £71,754. 11s. 6d., has been proved. The testator bequeaths to the Royal National Lifeboat Institution, the Society for the Prevention of Cruelty to Children, the Huddersfield Deaf and Dumb Society, the Huddersfield Blind Society, and the Huddersfield Invalid Kitchen £20. each, and to the British and Foreign Bible Society £25.

EMPLOYERS' LIABILITY AND THE COAL TRADE.—The Marquis of Londonderry, as a large colliery owner, is understood to take a strong view of the injury which the Compensation for Accidents Bill threatens to the coal trade. He recalls that four pits have had to be closed in the county of Durham during the past twelve months because they could not be worked at a profit; and he anticipates that any addition to the charges upon the industry is likely to result in disaster to other undertakings. Another employer of labour in the North points out that although the Bill is expected to involve only an extra charge of twopence per ton on the cost of getting coal, yet that sum must in many cases make all the difference between profit and loss. For illustration, it is stated that twopence a ton on a turnover like that of Sir James Joicey's collieries would mean £40,000. per annum.

PETROLEUM AND PUBLIC DANGER.—The *Daily Chronicle* denounces the "low-grade petroleum juggle," and declares the toleration of the existing low flashpoint of 73° to be not only a blunder but a scandal. Men like Lord Kelvin and Sir H. Roscoe, not to quote other testimony, have declared that to admit for common use in this country oil of that grade is to court grave accidents and loss of life. The Government, though it admits this perilous stuff for use in the homes of the unsuspecting and uninformed poor, will not allow anything to be used in its own barracks and other institutions under 105°, and sometimes insists on a test as high as 120°. To pass anything less than 100° as really safe for common use among the poor is in truth flat insanity. Why, then, is it allowed? the simple citizen will ask. The reason is because it suits the most powerful and the most unscrupulous of the American "Trusts."

PRIZES FOR TECHNICAL ESSAYS.—The Industrial Society of France, offers gold medals for a portable pyrometer indicating accuracy temperatures above 300° C., for a new method of utilising solid products of the distillation of petroleum, for the best lamp burning acetylene, for the application of an industrial process for extraction of sulphur from iron and copper pyrites, and for a rapid and accurate method of determining cobalt and nickel in the New Caledonian ores. The essays must be forwarded to the President of the society before September 30th. They must be written in French. The competition is open to members and non-members of the society.

THE OXYGEN HOME.—The Princess Louise opened the Oxygen Home for the treatment of wounds and ulcers by oxygen at 2, Fitzroy-square, London, W., on Thursday last week. A journey of inspection was made round the wards where some of the more interesting cases were under treatment, and her Royal Highness then formally declared the home open, and wished it every success. Mr. Burdett-Connors, giving an account of the aims of the institution, said that the oxygen cure, which was discovered and carried out solely by Dr. George Stoker, had long passed beyond the stage of experiment. A large sum of money had already been expended in acquiring and furnishing the home, but upwards of £1,000. was still needed to place the institution on a sound basis. It was further stated that the home was not for commercial purposes, but was to be used as a teaching centre.

Obituary.—Mr. Peter Hart, F.I.C., of Gransmoor Avenue, Farnfield, Manchester, died on Sunday evening last, after a short illness, his 63rd year. He had been connected with Messrs. Tennants & Co., manufacturing chemists of that city, for 49 years, having been manager of the works at Ardwick Bridge, and later on at Clayton, 31 years. At the age of 16 he entered the firm's laboratory, under James Young, F.R.S., of paraffin oil fame, who at that time was manager and chemist to Messrs. Tennants & Co., and there he assisted in Young's original experiments on coal shale distillation for paraffin oil production, at Ardwick Bridge. On Mr. Young's retirement from the firm (for the purpose of exploiting his oil discoveries) Mr. Hart became chemist at the works under his own father's management. He finally assumed full control of the works in 1881, retaining the same until his death. He was vice-chairman of the Manchester section of the Society of Chemical Industry.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products as a whole are quiet. Benzols have been moving little better, and prices stand now at 1s. 9d. for 90's and 1s. 11d. 50/90's. Carbolic acids are decidedly weaker, with 60% crude at 2s. 1 while 40% crystals may be said to remain at about 7½d. There is hardly a quotable change in naphthas, though the prices for crude solvent are virtually nominal at 11d. and 1s. 8d. respectively. Creosote quiet. Anthracene unaltered. Pitch is dull at 18s. to 22s. 1d. East Coast.

Sulphate of ammonia is quiet, the home consumption being on decline. In consequence, prices at all ports are rather low, particularly in the North. Beckton still stands at £7. 7s. 6d., London outside makes £7. 8s. 9d. to £7. 10s., Liverpool £7. 13s. 9d., £7. 8s. 9d. to £7. 10s., and Leith £7. 7s. 6d. to £7. 10s., all prices. There is nothing doing for forward.

MISCELLANEOUS CHEMICAL MARKET.

Business continues fairly active in all departments of the alkali trade, and the better demand for export is maintained. Bleaching powder firm at £6. 12s. 6d. f.o.b., and £6. 5s. f.o.r. makers' works for prompt and forward delivery. Caustic soda, spot and forward unchanged at last quotations, viz.: F.o.b. Liverpool, 77%, £9 : 7 : 8. 2s. 6d.; 70%, £7. 2s. 6d.; 60%, £6. 2s. 6d. nett per ton, 10 lots. Ammonia alkali is held firm at £3. 17s. 6d., f.o.r., but usual variations in price for export. Chlorates are quiet: potash at £16. 4s. 6d. and soda at 4½d. For soda crystals and bicarbonate quotations unaltered, and there is a good general demand for these. Sulphur at £4 12s. 6d. to £4. 15s., f.o.r. In saltcake there is more business doing at 20s., in bulk, f.o.r. Sulphate of copper quieter at £16. f.o.b. Prices of potash, caustic and carbonate, are firm, and there is a fairly active demand. Yellow prussiate of potash, 5½d. to 5 per lb. Soda, 4d. per lb. White powdered arsenic is quoted lower at £22. 10s. per ton. Brown acetate of lime firm at £5. 2s. 6d., c.i.f. All other acetates quiet and unchanged in price. Nitrate of soda easier at 7s. 6d. per cwt. For carbolic acids the only limited inquiry, and prices are rather lower. Aniline oil and are unchanged. For sulphate of iron there is more demand, and,

, a firmer market. Wood naphtha is higher. Borax and nitrate to offer at low prices. Sulphocyanides are quiet. Soda and ammonia lower. Tin crystals unaltered. A lull prevails in the principal manufacturing districts in approach of Whitsuntide holidays, and in miscellaneous whole, there is no sign as yet of any improvement in prices.

PORT ON MANURE MATERIAL.

There is a fair amount of business during the week for manure, but it has been mostly of a retail character, buyers not so much inclined to load themselves at the close of the season. In the north there has been more inquiry, but buyers' ideas as to value are at a discount upon present values. Florida phosphate offers at 5½d. per unit, shipment up to spring, 1898, but many buyers being in no hurry will not at present give this price. 58/63% offers at 5d. per unit, in cargoes, c.i.f. to Kingdom ports, but buyers hesitate to pay this price. River rock is quoted 5d., but it is reported that business at a fraction less. There are sellers of East Indian bone quality, at £3. 11s. 3d. per ton, ex store Liverpool, but something less would be accepted. Nitrate of soda is £1. per cwt. for good, up to 7s. 7½d. for fine quality. Enquiry for miscellaneous nitrogenous material, but little offering, supplies being small.

THE METAL MARKET.

WEDNESDAY.—Pig iron steady. Scotch warrants closed at 39s. 6d.; cash and hematite, 47s. 6½d.; copper steady. O.B.'s and G.M.B.'s, closed at £48. 15s. to £49. cash, 3d. to £49. 6s. 3d. three months. Tin firmer: Straits 17s. 6d. to £61. 7s. 6d. cash, and £61. 7s. 6d. to £61. 10s. months; Australian, £62. 10s. English ingots, £64. Lead steady: Spanish, £11. 18s. 9d.; English, £12. 6d. Silesian spelter, ordinary, £17. 5s. Nickel, 1s. 6d. to £30. to £30. 10s. Quicksilver: First hands, £7. 7s. Copper shares steady: Cape, 2½ to 2½; Libiola, 2½ to 2½; Mason and Barry, 2½ to 2½; Tharsis, 5½ to 6.

WEDNESDAY.—Market quiet and steady. Scotch pig iron, 44s. 7d. cash, and 44s. 9½d. one month; buyers, 44s. 7d. cash, and 44s. 9½d. one month; sellers, 44s. 7d. cash, and 44s. 9½d. one month; buyers, 39s. 6d. cash; sellers, 39s. 6d. cash; hematite done at 47s. 10d. to 47s. 9½d., one month; 47s. 6½d. cash; sellers, 47s. 7½d. Middlesbrough pig iron, 49s. 3d. cash; sellers, 49s. 4d.

POOL OIL AND COLOUR MARKET.

WEDNESDAY. Pool oil is still featureless, business being almost at a standstill. Olive is steadier, and in better demand at £30. Malaga £30. 10s., and Seville £28. according to quality. Linseed is rather firmer, and is being at 15s. 6d. to 16s. 6d. per cwt. for Liverpool makes in Cottonseed has fallen, but is now firm at 15s. to 15s. 9d. or oil is quiet; good seconds Calcutta are quoted 3½d. more French has been selling ex store at 3d. per lb. for good demand, and prices steady. Resin keeps firm, on as well as the higher grades, with a fairly good spot price of turpentine are the turn better, and sellers are now at 21s. 3d. per cwt. Petroleum dull, with values at 5½d. for American, and Russian refined 5½d. per gallon. Linseed, Liverpool and West American, unaltered. Cottonseed (decorticated) rather firmer at £5. 2s. 6d. to Liverpool makes easier at £5. 17s. 6d. to £6. 5s. Unaltered (Liverpool) dull at £3. 15s. to £4. 17s. 6d. Egyptians in demand on spot at £3. 15s. per ton.

PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The markets show a slight improvement upon the week, the price of cotton and linseed oils being both steady at the moment. The imports to date, as against the same time a year ago:—Linseed, 256,763 quarters, against 274,029 quarters; 785 quarters, against 55,979 quarters; cottonseed, against 81,459 tons; oilcake, 5,087 tons, against 5,461 tons, against 2,859 tons. Linseed oil closes 7½d. per cwt., naked spot; forward June-August, 14s.; for months, 14s. 3d. per cwt. Refined and boiled, £1. to

£1. 10s. per ton extra. Refined cotton oil steady, and is quoted: Spot, naked, 12s. 9d. to 12s. 10½d. per cwt.; forward June-Aug., 13s. to 13s. 1½d.; November-April, 13s. 17½d. Crude, spot, is quoted 11s. 7½d., to 11s. 9d. Filtered refined is about £1. per ton extra; ordinary casks £1. 10s. per ton extra. Spirits of turpentine, 21s. 3d. to 21s. 4½d. Olive oil does not appear to be of an improving value, and business has been done at the following rates:—Candia and Malaga £30. 10s., and Levant £30.; there are other qualities offering cheaper. Olive oil soaps, £16. to £18. per ton. Oleines from £15. 10s. to £18. per ton. Castor oil unchanged. Yorkshire grease, £7. 10s. to £9. per ton. Cod oils, £15. to £18. per ton.

CAKES.—In only limited demand, the trade generally being very quiet. Linseed cakes, 95%, very quiet, at £6. 7s. 6d. to £6. 10s. per ton; oilcakes, £5. 7s. 6d. to £5. 10s. per ton; Russians, £6. 2s. 6d. per ton; Americans, £5. 2s. 6d. to £5. 5s. per ton. Cotton cakes experience a very poor demand: best makes £3. 11s. 3d. to £3. 12s. 6d.; seconds, £3. 10s. per ton. Rape Cakes: Black Sea, £3. 11s. 3d. to £3. 15s. per ton.

PAINTS.—Makers here are very busy in anticipation of the holidays and the Jubilee festivities, which stimulates business in prompt orders. Prices are unchanged.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Since the beginning of last week sulphate of ammonia has been edging still farther backward, and the price to-day cannot be stated at more than £7. 10s., prompt, f.o.b. Leith. Indeed, it is reported that one or two holders have been offering at the next step downward. In reference to the forward system of arrangement, the sheet continues a total blank, with buyers and sellers farther apart than ever in their views. Nitrate of soda also is lower. Mineral oils and paraffins (excepting lubricants) all continue very idle, though the works hold to quite diligent production and storage, with an eye to next consumptive season. Prices are nominally stationary—all except naphtha, which is obtainable in some quarters at 6d. per gallon. In general chemicals there is no improvement. Whatever indication of price movement there is, rather points to the fall. Both bleaching powder and chlorate of potash are fractionally easier.

Chief prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne; soda ash, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, 48/52°, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, 35/37°, £6. 10s. nett, Tyne; saltcake, 19s. to 20s.; borax, English, refined, £16. 10s. and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash, 4d. less 5%, any port; nitrate of soda, 7s. 7½d. to 7s. 10½d.; sulphate of ammonia, £7. 8s. 9d. to £7. 10s., prompt, f.o.b. Leith; sal ammoniac, first and second white, £33 and £31. nett, any port; sulphate of copper, £16. 5s. less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 6d. to 6½d. per gallon; paraffin oil (burning) No. 1, 6½d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 118,429 mats cane unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

The chemical trade is practically without alteration, though a steady business continues to be done. Soda crystals, £2. 12s. 6d. per ton, gross weight, locally. Caustic, 70%, £7. 10s. per ton; and 76/77%, scarce, at £9. per ton. Sulphur, £5. per ton.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett; do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight;

chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is firmer, at 9s. 6d. per ton, f.o.b. Tees.

COALS.—Trade is steady, and there is a good demand for most qualities prior to the holidays. Coke continues in excellent request, and large business has been booked ahead. Best Northumbrian steam, 8s. 6d. to 8s. 9d. per ton; second qualities, 7s. 6d. to 7s. 9d. per ton; small steam, 3s. 9d. to 4s. per ton; household coals, 10s. to 11s. per ton; gas coals, quiet, 7s. 3d. to 7s. 9d. per ton; coke firm, at 16s. per ton.

New Companies.

B. F. Moise, Ltd.—CAPITAL £10,000., in shares of £1. each. This company has been formed to manufacture and deal in perfumes, soaps, etc. The subscribers to the memorandum of association are:—B. F. Moise, 9, Butler-street, E.C., manufacturing perfumer; G. Gaskell, 9, Butler-street, E.C., chemist; A. Strange, 30, Sotheby-road, Highbury, N., clerk; J. H. Cornfield, 6, Camborne-terrace, Richmond, clerk; A. Jefferson, 8, Colville-road, Leytonstone, clerk; C. H. Prince, 5, Burma-road, Stoke Newington, clerk; E. Hull, 10, Grafton-road, Holloway, clerk.

Dominion Pulp Co., Ltd.—CAPITAL £100,000. in £1. shares. This company has been formed to enter into agreements with A. E. and H. Reeds and others, and to trade as paper and pulp manufacturer and importers, etc. The subscribers to the memorandum of association are:—H. James, Chislehurst, Kent, gentleman; J. B. Widdicom, Dilkoosha, Enfield, gentleman; A. E. Reed, Belgrave House, Manton, paper manufacturer; A. E. Harris, 42, Langham-road, Tottenham, clerk; C. Newell, 1287, Queen Victoria-street, E.C., agent; J. Leary, 28, Cricketfield-road, Clapton, accountant; H. Workman, 24, Stainforth-road, Walthamstow, gentleman.

H. Simon, Ltd.—CAPITAL £100,000., in £10. shares. This company has been formed to carry on the business of milling engines, &c., at Manchester and Australia. Registered office, 20, Mount-street, Manchester. The subscribers to the memorandum of association are:—H. Simon, 20, Mount-street, Manchester, engineer; Mrs. E. Simon, Lawnhurst, Didsbury; J. Ingleby, 20, Mount-street, Manchester, engineer; G. Huxley, 20, Mount-street, Manchester, engineer; W. Mehlhous, 20, Mount-street, Manchester, cashier; J. R. Radford, 20, Mount-street, Manchester, engineer; J. W. Walworth, 25, Mount-street, Manchester, engineer.

Alexander, Fergusson, & Co., Ltd.—CAPITAL £140,000., in 7,000 5% cumulative preference shares of £10., and 7,000 ordinary £10. shares. This Company has been formed to carry on the business founded in 1854, at M'Alpine-street, by Mr. Fergusson and the late Mr. Henry Alexander, for the manufacture of sheet lead, pipes, paints, colours, oils, varnishes, and drysalteries. Also to carry on the manufacture of white lead by the old Dutch or stack process, and plant for lead smelting and desilverising, and red lead making.

IMPORTS OF CHEMICAL PRODUCTS AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 22nd.

Acetic Acid —		
Holland, 12 pks.	A. & M. Zimmermann	
" 106	Little & Johnston	
Alkali —		
Belgium, 500 c.	T. H. Lee	
France, 200	J. Barber & Co.	
Belgium, 10	A. & M. Zimmermann	
Canada, 340	J. Barber & Co.	
Belgium, 400	W. G. Jacobs	
Alum —		
Holland, 13 cks. 70 pks.	Ohlen-schlagers Brs.	
Germany, 73	"	
Antefrine —		
Holland, 10 kgs.	J. Barber & Co.	
Antimony Ore —		
Corsica, 26 t.	J. Bamber	
Portugal, 30	"	
Arsenic —		
Melbourne, 75 brls.	G. H. Adams & Co.	
Portugal, 63	Coveley & Westray	
Asbestos —		
Germany, £24	Craven & Co.	
U. States, 320	W. Byford	
Barium Chloride —		
Germany, 22 cks.	Petri Brs.	
Barytes —		
Germany, 78 cks.	W. Harrison & Co.	
Holland, 122	"	
Belgium, 78	Sawer, Sons & Co.	
" 34	J. L. Lyon & Co.	
Holland, 57	"	
Belgium, 28	A. Zumbeck & Co.	
Bromine —		
Germany, 20 cs. A. & M. Zimmermann		
Camphor —		
Japan, 69 tubs	L. & I. D. Jt. Co.	
Germany, 2 brls.	"	
Caoutchouc —		
Germany, 1 cs.	R. G. Hall & Co.	
Rangoon, 290	A. Howden & Co.	
U. States, 100	Prop. Bull Wf.	
Zanzibar, 1	Clarke & Smith	
" 20	L. & I. D. Jt. Co.	
Rangoon, 248	"	
E. Indies, 80	S. Figgis & Co.	
Germany, 21	T. H. Lee	
Zanzibar, 11	S. Figgis & Co.	
Rangoon, 12	Prop. Hay's Wf.	
Penang, 644	E. Boustead & Co.	
E. London, 80	Hammond & Co.	

Mauritius, 10	L. & I. D. Jt. Co.	
Cape, 4	Stiebel Brs.	
U.S., Col., 57	Ralli Brs.	
E. Indies, 38	"	
Carbolic Acid —		
Holland, 60 pks.	J. G. Back	
" 55	Blagden, Wagh & Co.	
Castor Oil —		
Belgium, 60 brls.	J. T. Morton	
France, 3 cs.	W. G. Frith	
E. Indies, 80	Anderson, Weber & Smith	
Caustic Potash —		
France, 19 drs.	Carey & Sons	
" 28	Petri Brs.	
" 1 ck.	J. Henderson & Sons	
Chemicals (otherwise undescribed)		
Holland, £28	Typeke & King	
" 80	B. & F. Wf. Co.	
U. States, 160	John Cockerill Line	
Belgium, 88	L. & I. D. Jt. Co.	
Germany, 45	Herrn, Peron & Co.	
Holland, 35	"	
Germany, 451	T. H. Lee	
" 668	A. & M. Zimmermann	
" 29	Phillips & Graves	
Melbourne, 150	L. & I. D. Jt. Co.	
Holland, 4 cks.	Carey & Sons	
Copper Sulphate —		
France, 28 cks.	Vokins & Co.	
Cream of Tartar —		
France, 9 cks.	H. Johnson & Sons	
Holland, 48 pks.	Kirkpatrick & Co.	
France, 3	B. & F. Wf. Co.	
" 4	C. Atkins & Nisbet	
" 3	Ross & Deering	
Italy, 8	Thames S. T. & L. Co.	
France, 5	F. C. Devon & Co.	
" 16	C. F. Gerhardt	
France, 2	G. S. N. Co.	
Dextrine —		
Germany, 101 bgs.	W. Balchin	
" 100	H. Lorenz	
Dyestuffs —		
Annatto		
France, 10 cs.	R. J. Fullwood & Co.	
Argols		
Italy, 83 cks.	Thames S. T. & L. Co.	
" 1,688	B. Jacob & Sons	

Gochineal		
Canaries, 3 bgs.	W. M. Smith & Sons	
" 15	Sperling & Williams	
Gutch		
Rangoon, 100 bxs	A. Howden & Co.	
" 550	Leach & Co.	
" 200	L. & I. D. Jt. Co.	
" 500	Hicks & Ashmore	
" 20	Brown & Emille	
Extracts		
Germany, 12 cs.	J. Norrenberg & Co.	
France, 2 pks.	T. H. Lee	
Holland, 3 brls.	R. Baels & Co.	
U. States, 50	Deering & Robottom	
" 100 bxs.	Skilbeck Brs.	
Gambier		
Singapore, 253 bgs.	Ross & Deering	
" 430	G. R. Haller	
" 229 bls.	J. Greig	
" 505	E. J. Winer & Co.	
Indigo		
E. Indies, 23 chts.	R. Von Glehn & Sons	
" 22	D. Macfadyen & Co.	
" 6	Jules Karples & Co.	
" 157	L. & I. D. Jt. Co.	
" 13	Lewis & Peat	
" 44	Patry & Pasteur	
Logwood		
B. W. I., 30 t.	M. Kearton & Co.	
" 26	L. & I. D. Jt. Co.	
Madder		
France, 3 cks.	Skilbeck Brs.	
Myrabolams		
E. Indies, 452 bgs.	Baxter & Hoare	
" 1,000	S. Barrow & Bro.	
" 4,093	Hoare, Wilson & Co.	
Naphthaline		
Germany, 14 cks.	Fleming's Oil & Chemical Co.	
Shumac		
Italy, 400 bgs.	Bevington & Sons	
" 100	Beresford & Co.	
" 200	Fisher, King & Co.	
" 500	J. Kitchen	
" 100	Bailey & Lestham, Ltd.	
Tanners' Bark		
Natal, 11 t.	A. J. Humphery	
" 59	Boucher, Mortimore & Co.	
" 10	A. & W. Nesbitt	
" 33	Flack, Chandler & Co.	
Adelaide, 51	Devitt & Hett	

Sydney, 6	Beresford & Co.	
Belgium, 10	J. Harrison	
Sydney, 32	Dyster, Naber & Co.	
Parina —		
Holland, 30 bgs.	T. H. Lee	
Gamboge —		
China, 15 cs.	Chapman, Anthony & Co.	
Glucose —		
France, 200 pks. 200 c.	W. E. Cole	
" 200	L. Nansen & Co.	
U. States, 805 778	L. & I. D. Jt. Co.	
" 100 608	William	
" 1,500 1,500	Terry & Co.	
Germany, 125 700	M. D. Co.	
U. States, 57 302	A. B. Carls & Co.	
" 1,500 1,500	Beresford & Co.	
" 1,000 1,000	G. Clark	
" 70 120	L. Nansen & Co.	
" 1,675 8,801	R. G. Hall & Co.	
" 1,520 1,500	E. Thompson & Co.	
" 10 150	W. Biddis	
" 675 1,093	Fellows, Morton & Co.	
Glue —		
France, £18	Bennett & S. Co.	
" 82	J. Harrison	
Germany, 370	T. H. Lee	
France, 85	Denke & Son	
U. States, 40	Armour & Co.	
Belgium, 160	J. Barber & Co.	
Holland, 54	G. Rahn & Co.	
France, 25	Mory & Co.	
U. States, 93	C. Ward	
Infusorial Earth —		
Germany, £50	Doering, Kobenz & Co.	
" 12	J. Green	
Melbourne, 300 bls.	L. & N. W. B.	
Germany, 50 t.	A. H. Co.	
Lamp Black —		
U. States, 38 pks.	L. & I. D. Jt. Co.	
Litharge —		
Holland, 26 cks.	J. Ovens	
Manganese Ore —		
Japan, 50 t.	R. Warner & Co.	

ire—
any, 50 t. Perkins & Homer
any, 20 D. de Pass & Co.
any, 139 A. Hunter & Co.
any, 5 Chemical Works Co.
any, 250 Union L. Co., Ltd.
any, 281 W. E. Cole

ilic Oxide—
any, 11 cks. Brit. Anti-Fouling
any, 10 dms. C. Co.

yl Alcohol—
any, 10 dms. Lister & Biggs

ies, £30 C. F. Gerhardt
ates, 20 Biglands, Ltd.
ies, 8, 140 W. M. Smith & Sons
ies, 255 E. Davis & Co.
ates, 125 C. Ward
ies, 317 Dundee, Perth, & London S. Co.

ses—
ates, 50 cks. 300 c. W. Balchin
any, 100 550 Deering & Robottom

any, 850 bgs. Anglo-Contl. G. Works
um, 820
18,726

ies, 25 cks. C. F. Gerhardt
477 W. Harrison & Co
106 Taylor Bros.
21 D. Storer & Sons
nd, 2 2 cs. Philipps & Graves
13 pks.

ates—
ates, 100 bxs. Seaward Bros.

ate Rock—
e, 378 t. A. Hunter & Co.
um, 155 Anglo-Contl. G. Wks.

any, 33 brls. T. Simpson
39 Poth, Hille, & Co.

ago—
ies, 55 pks. Lunham & Moore
any, 25 cks. B. Gallaway
ore, 64 G. R. Haller
any, 3 T. H. Lee
1 R. Biermann
30 R. G. Hall & Co.
200, 48 Marshall & French
497 J. Thredder, Son, & Co.
208 Henderson Bros.
199 Marshall & French
ies, 1 Furness, Withy, & Co.

ium Bicarbonate—
ad, 40 c. A. & M. Zimmermann

um Carbonate—
any, 410 c. Gas Light & Coke Co.
10 Petri Bros.

ium Oxymuriate—
n, 10 kgs. G. Boor & Co.

ium Sulphate—
m, 750 bgs. F. W. Berk & Co.

1,390 t. Anderson, Anderson, & Co.

ilver—
100 flasks. H. Bath & Son

ies, 1,500 brls. T. Nickels & Co.
m, 7 John Cockerill Line
ny, 27 L. & I. D. Jt. Co.

Oil—
s, 200 brls. Fleming's Oil & Chemical Co.

tre—
ies, 303 bgs. Anglo-Contl. G. Works
5,381 Lucas & Spencer's Wf.
800 W. Balchin
1,384 Perkins & Homer

nd, 2,240 c. R. Waters

n Sulphate—
ny, 365 pks. Deering & Robottom

ad, 990 cs. Little & Johnston
ies, 230 pks. C. Tennant, Sons, & Co.

ny, 2,230 cs. Horne & Co.
23 Philipps & Graves
ies, 100 sks. W. G. Taylor & Co.
1,100 bgs. R. G. Hall & Co.
1,800 Ohlenschlager Bros.
any, 6 cks. T. H. Lee
m, 182 cs. F. Claydon & Co.
80 C. Tennant, Sons, & Co.

" 40 Pronk, Davis, & Co.
" 100 bgs. R. G. Hall & Co.
Holland, 40 cs. Hernu, Peron, & Co.
Belgium, 40 Leach & Co.
" 80 J. Harrison
" 200 T. H. Lee
U. States, 4,000 bgs. Union L. Co.
Holland, 160 E. Olyett & Sons
Belgium, 60 cs. Philipps & Graves
" 200 Taylor Bros.
U. States, 24 bgs. E. & T. Pink
Germany, 30 300 cs. Seaward Bros.

Stearine—
Holland, 51 bls. T. H. Lee
U. States, 300 cs. Wilsons & Furness
Belgium, 13 cks. 25 bgs. H. Hill & Sons

France, 150

Sulphur—
Italy, 1 t. Jessop & Co
" 20 J. Greig
" 25 Pigon, Wilks, & Co.

Sulphurous Acid—
Holland, 4 pks. Fleming's Oil & C. Co.

Talc—
E. Indies, £1,660 A. B. Curtis & Co.

Tartaric Acid—
Germany, 6 pks. F. C. Devon & Co.
Holland, 28 Kirkpatrick & Co.
Italy, 2 G. Boor & Co.
France, 19 F. C. Devon & Co.
Italy, 10 B. & F. Wf. Co.
" 16 F. C. Devon & Co.

Ultramarine—
Holland, 4 cks. H. Hodson & Co.
Germany, 10 Henderson, Craig, & Co.
U. States, 20 cs. Steinhoff, Sons, & Co.
Belgium, 4 trls. W. Harrison & Co.
Holland, 1 ck. J. Barber & Co.
" 9 Philipps & Graves

Yarnish—
U. States, 6 pks. Dawson Bros.
" 13 Taylor Bros.
France, 1 Mory & Co.

Verdigris—
France, 4 cks. C. F. Gerhardt
" 1 B. & F. Wf. Co.

Vermilion—
Hong Kong, 20 cs. Eastwood & Holt

White Lead—
Holland, 38 cks. A. & M. Zimmermann
France, 17 J. Watt & Sons
" 10 cs. Taylor Bros.
Belgium, 95 cks. T. & W. Farmiloe, Ltd.
Germany, 9 J. Barber & Co.
Holland, 50 T. & W. Farmiloe, Ltd.
Germany, 38 D. Storer & Sons

Wood Pulp—
Holland, 147 pks. G. Rahn & Co.
Sweden, 200 Tough & Henderson
" 6,920 Henderson, Craig, & Co.
" 84 Christophersen, Andrews, & Co.
Norway, 1,033 Johnsen & Jorgensen
203 W. Friedlaender
Sweden, 63 W. G. Taylor & Co.
" 272 C. S. Lovell
Germany, 102 H. Lambert
Sweden, 800 W. E. Bott & Co.
Portugal, 450 W. G. Taylor & Co.
Germany, 1,011 E. J. & W. Goldsmith
Holland, 52 Vokins & Co.
" 54 Thames S. T. & L. Co.

Zinc Oxide—
Belgium, 50 cks. Prprs. Dowgate Dk.
France, 20 brls. M. Ashby, Ltd.
Germany, 40 J. Harrison
Belgium, 2 cks. M. Ashby, Ltd.
U. States, 200 M. Ashby, Ltd.
Holland, 50 J. Matton

Zinc Sulphate—
Holland, 12 cks. Philipps & Graves

LIVERPOOL.

Week ending May 20th.

Acetate of Lime—
New York, 1,068 sks.

Albumen—
Naples, 17 cs.

Ammonium Carbonate
Marseilles, 1 ck.

Asbestos—
Genoa, 6 cs. D. Gabrielson

Barytes—
Rotterdam, 22 cks.

Bone Ash—
B. Ayres, 600 bgs. W. B. Dickinson
Zarate, 320 J. Nelson & Sons, Ltd.

Boracic Acid—
Leghorn, 5 cks.

Borax—
Mollendo, 421 sks.

Caoutchouc—
Mollendo, 32 bls. J. H. Schroeder & Co.
Valparaiso, 19 pks. F. Huth & Co.

Chemicals (other wise undescribed)
Rouen, 570 kgs. R. J. Francis & Co.

Hamburg, 10 cs.

Colours—
Antwerp, 8 cks. J. T. Fletcher & Co.
Ghent, 1 bl.

Cottonseed Oil—
New York, 10 brls.

Cream of Tartar—
Bordeaux, 41 cks.
Barcelona, 5

Dried Blood—
Zarate, 124 bgs. J. Nelson & Sons, Ltd.

Dyestuffs—
Alizarine
Rotterdam, 6 cks.
Argois
Leghorn, 1 ck.
Cutch
Rangoon, 3,850 bbs.
Divi Divi
Hamburg, 1 bg.
Fustic
Corfu, 240 bdls. W. Forsberg & Co.

Myrabolams
Bombay, 60 bgs. E. D. Sassoon & Co.

Orchella
Lisbon, 7 bls.

Shumac
Palermo, 430 bgs.

Valonia
Syra, 50 bgs. R. Shaw & Co., Ltd.
" 346 G. T. Scrinis
" 305 L. J. Vuzunaras
Constantinople, 711 Jivan Tekian

Farina—
Fiume, 50 bgs.
Hamburg, 240 H. Tyrer & Co.
Trieste, 100

Glucose—
New York, 300 brls. T. M. Duche & Sons
" 900

Glue—
Rotterdam, 104 bgs.
Hamburg, 100
Ghent, 2 cks.
Genoa, 7 brls.
Fiume, 100 bls.
Naples, 120
New York, 50 cs. E. & Am. McNry. Co.

Lead Acetate—
Hamburg, 12 cks.

Limestone—
Antwerp, 1 crt. J. T. Fletcher & Co
" 5 pks.

Manganese—
Hamburg, 5 cks.

Manganese Ore—
Poti, 2,650 t. Darwen & Mostyn Iron Co.
Rio de Janeiro, 2,300

Manure—
Kingston, 1 bg. S. Wright

Mineral White—
Trieste, 50 bgs.
Fiume, 100

Molasses—
New Orleans, 1,500 brls.

Ochre—
Rouen, 13 cks. R. J. Francis & Co.
Marseilles, 20 crts. 17 brls.
Port Royal, 70

Paint—
Rotterdam, 20 dms.

Paraffin Scale—
Baltimore, 102 brls.
Philadelphia, 100

Phosphates—
Port Royal, 2,750 t.

Phosphate Rock—
Brunswick, Ga., 1,070 t.

Plumbago—
Genoa, 102 bgs. G. Huntriss & Co.

Potash—
Antwerp, 10 dms.

Pumice Stone—
Messina, 13 cs. 1 brl. 18 cks.

Pyrites—
Huelva, 4,241 t. Matheson & Co.

Saltpetre—
Hamburg, 13 cks. 80 kgs.

Silver Sulphide—
Colon, 1 cs. Gruning & Co.

Soap—
Bari, 373 cs.
N. Orleans, 2,871 brls.
Boston, 10 Boot's Pure Drug Co.
Antwerp, 1 J. T. Fletcher & Co.
Marseilles, 15 J. S. Briggs
Leghorn, 10
Naples, 293
Trieste, 12

Soapstone—
Bordeaux, 8 cs. Geo. G. Blackwell, Son & Co.
Genoa, 400 bgs. W. Harrison & Co.
" 300
" 100 G. Huntriss & Co.

Starch—
New York, 200 bgs.
Hamburg, 100
Baltimore, 900
Antwerp, 241 cs. J. T. Fletcher & Co.
" 380
" 60

Stearine—
New York, 20 hds.
Baltimore, 100 pks.

Sulphur—
Catania, 150 t. 100 cks. 100 bgs.

Talc—
Marseilles, 2 cks. 100 bgs.
Genoa, 250

Tallow—
Zarate, 283 pps. J. Nelson & Sons, Ltd.
Baltimore, 95 brls.
Sydney, N.S.W., 486 cks. Lever Bros., Ltd.

Tartar
Naples, 5 cks.

Tartaric Acid—
Rotterdam, 13 cks.

Treacle—
New York, 500 brls.
Boston, 1,000
Philadelphia, 400

Ultramarine—
Rotterdam, 17 cks.
Hamburg, 1 cs.

Waste Salt—
Hamburg, 845 cks. H. Tyrer
" 6,762 bgs.

Wood Pulp—
Boston, 1,028 bls.
Halifax, 6,814 bdls.
Montreal, 1,620 Alfred Rue & Co.

Zinc Oxide—
New York, 150 brls.
Antwerp, 63

Zinc White—
Rotterdam, 125 cks.

MANCHESTER.

Week ending May 22nd.

Acetate of Lime—
New York, 538 bgs.

Alizarine—
Rotterdam, 36 cks. 60 brls.

Aniline Colours—
Rotterdam, 15 cks. 1 crte.

Aniline Salts—
Rotterdam, 4 brls.

Antimony Salts—		
Rotterdam,	4 cks.	
Asbestos—		
Genoa,	18 pks.	
Barytes—		
Rotterdam,	11 cks. 200 bgs.	
Beta-Naphtha—		
Rotterdam,	1 bbl.	
Chemicals (otherwise undescribed)		
Hamburg,	2 cs.	
Rotterdam,	1	
Chrome Alum—		
Rotterdam,	16 cks.	
Chromium Acetate—		
Rotterdam,	13 brls.	
Colours—		
Boulogne,	20 cks.	
Rotterdam,	101 pks.	
Farina—		
Stettin,	700 bgs.	Browne, Gereke, & Co.
Stettin,	1,004	
Glucose—		
Stettin,	1,069 cs.	
New York,	150 brls.	
Glue—		
Stettin,	20 bgs.	
Copenhagen,	3 bls.	
Rotterdam,	20 10 cs. 5	
Limestone—		
Antwerp,	3 crts.	
Mineral White—		
Genoa,	100 bgs.	
Paint—		
Hamburg,	79 cks.	
Paraffin Scale—		
New York,	950 brls.	Anglo-American Oil Co.
Pitch—		
Rotterdam,	13 cks.	
Potash—		
Stettin,	1 ck.	H. B. Wood
Rotterdam,	60	
Potassium Chloride—		
Hamburg,	10 cks.	
Potassium Sulphate—		
Rotterdam,	100 cks.	
Pyrites—		
Huelva,	1,666 t.	
"	2,261	Stott, Coker, & Co.
Sodium Nitrate—		
Rotterdam,	12 cks.	
Starch—		
New York,	6,700 bgs.	
Ghent,	40 cs.	
Rotterdam,	45	
Tar Salt—		
Hamburg,	3 cks.	
Tartar—		
Rotterdam,	2 cks. 20 kgs.	
Tartaric Acid—		
Rotterdam,	20 kgs.	
Waste Salt—		
Hamburg,	450 bgs. and qty.	
White Lead—		
Rotterdam,	40 cks.	
Wood Pulp—		
Gefle,	8,383 bls.	Stott, Coker, & Co.
Gothenburg,	2,733	
Hamburg,	495	
Zinc Ashes—		
Stettin,	5 cks.	
Zinc Oxide—		
Rotterdam,	25 brls.	

HULL.

Week ending May 22nd.

Antimony—		
Legh.,	80 cks.	Wilson, Sons, & Co., Ltd.
Asbestos—		
Genoa,	8 cs.	
Barytes—		
Bremen,	18 cks.	G. Holmes & Co.
"	23	
Ghent,	64 pks.	Hutchinson & Son
Rotterdam,	21 cks.	Hutchinson & Son
"	100 bgs.	Wilson, Sons, & Co., Ltd.
"	22	Blundell, Spence, & Co.
Antwerp,	178	

Castor Oil—		
Leghorn,	3 cs.	Wilson, Sons, & Co., Ltd.
Genoa,	10 30	
Chemicals (otherwise undescribed)		
Dunkirk,	8 dms.	Wilson, Sons, & Co., Ltd.
Hamburg,	1,791 bgs. 61 pks.	Wilson, Sons, & Co., Ltd.
China Clay—		
Hamburg,	100 cks.	Bailey & Leatham, Ltd.
"	1 cs.	
Cod Oil—		
Drontheim,	20 brls.	Wilson, Sons, & Co., Ltd.
Christiansund,	1 cs.	"
Aalesund,	50 brls.	"
Bergen,	13 1/2	"
Christiania,	25	"
Colours—		
Bremen,	40 cks.	Sissons Bros. & Co.
Ghent,	20	Wilson, Sons, & Co., Ltd.
Antwerp,	4	Bailey & Leatham, Ltd.
"	1	Storry, Witty, & Co.
Rotterdam,	1 1/2 cs.	W. & C. L. Ringrose
Hamburg,	11 brls. 1 bx.	Wilson, Sons, & Co., Ltd.
Cryolite—		
Copenhagen,	2 cks.	Wilson, Sons, & Co., Ltd.
Dextrine—		
Hamburg,	50 gs.	Wilson, Sons, & Co., Ltd.
Dyestuffs—		
Alizarine		
Rotterdam,	18 cks.	W. & C. L. Ringrose
Valonia		
Smyrna,	723 bgs.	
Farina—		
Harlingen,	170 bgs.	W. & C. L. Ringrose
Marseilles,	20	Wilson, Sons, & Co., Ltd.
Stettin,	200	"
Glue—		
Bremen,	40 bgs.	Veltmann & Co.
Lead Acetate—		
Hamburg,	5 cks.	Wilson, Sons, & Co., Ltd.
Minium—		
Rotterdam,	10 cks.	Sissons Bros. & Co.
Ochre—		
Marseilles,	4 cks.	Wilson, Sons, & Co., Ltd.
"	8	
Rouen,	10	Rawson & Robinson
"	31	Morley, Clarke, & Co.
Phosphates—		
Ghent,	200 t.	
Pitch—		
Hamburg,	30 brls.	Wilson, Sons, & Co., Ltd.
Rotterdam,	6 cks.	Hutchinson & Son
Potash—		
Dunkirk,	5 dms.	Wilson, Sons, & Co., Ltd.
Pumice Stone—		
Leghorn,	235 pks.	Wilson, Sons, & Co., Ltd.
"	41 cs.	
Saltpetre—		
Hamburg,	1 ck.	Wilson, Sons, & Co., Ltd.
Soap—		
Marseilles,	5 cs.	Wilson, Sons, & Co., Ltd.
Rotterdam,	25	W. & C. L. Ringrose
Soda—		
Hamburg,	2 cks.	Bailey & Leatham, Ltd.
Sodium Nitrate—		
Hamburg,	201 bgs.	Wilson, Sons, & Co., Ltd.
Starch—		
Ghent,	234 cs.	Wilson, Sons, & Co., Ltd.

Rotterdam,	160	Hutchinson & Son
Antwerp,	32	Bailey & Leatham, Ltd.
Bremen,	1,088	Veltmann & Co.
Tallow—		
Dunkirk,	52 cks.	Wilson, Sons, & Co., Ltd.
Tartar—		
Bordeaux,	2 cks.	Rawson & Robinson
Tartaric Acid—		
Rotterdam,	6 cks.	W. & C. L. Ringrose
Treacle—		
Boston, U.S.A.,	200 brls.	Wilson, Sons, & Co., Ltd.
Turpentine—		
Bordeaux,	5 cks.	Rawson & Robinson
Waste Salt—		
Hamburg,	1,363 bgs.	Wilson, Sons, & Co., Ltd.
"	800	Bailey & Leatham, Ltd.
White Lead—		
Rotterdam,	58 cks.	Hutchinson & Son
Amsterdam,	29	W. & C. L. Ringrose
Rotterdam,	37	Sissons Bros. & Co.
Wood Pulp—		
Hamburg,	824 bls.	Wilson, Sons, & Co., Ltd.
Rotterdam,	86 pks.	Hutchinson & Son
Konigsberg,	100 bls.	Bailey & Leatham, Ltd.
Stettin,	196 pks.	Wilson, Sons, & Co., Ltd.
Abo,	284 bls.	J. Good & Sons
Zinc Oxide—		
Antwerp,	25 cks.	Sissons Bros. & Co.
Zinc White—		
Rotterdam,	25 cks.	Blundell, Spence, & Co.
"	25	Hanger, Watson, & Harris

GLASGOW.

Week ending May 27th.

Acetic Acid—		
Gothenburg,	10 balloons	
Alkali—		
Rotterdam,	30 cks.	J. Rankine & Son
Arachide Oil—		
Rotterdam,	6 cks.	J. Rankine & Son
Asbestos—		
Genoa,	38 bls.	
New York,	1 pk.	
Barium Chloride—		
Rotterdam,	6 cks.	J. Rankine & Son
Barytes—		
Rotterdam,	75 cks.	J. Rankine & Son
Hamburg,	12 200 bgs.	
Chemicals (otherwise undescribed)		
Rotterdam,	8 cks. 1 cs.	J. Rankine & Son
Colours—		
Montreal,	1 bx.	
Hamburg,	1 ck.	
Rotterdam,	79 pks.	J. Rankine & Son
Dyestuffs—		
Alizarine		
Rotterdam,	17 cks.	J. Rankine & Son
Aniline		
Rotterdam,	3 cks. 1 cs.	J. Rankine & Son
Argols		
Bordeaux,	44 cks.	
Cutch		
Rangoon,	1,724 bxs.	
Shumac		
Palermo,	780 bgs.	
French Chalk—		
Fiume,	10 bgs.	Dumbarton Ropework Co.
"	250	
Gelatine—		
Hamburg,	7 cs.	
Glucose—		
New York,	750 brls.	

Glue—		
New York,	151 cks.	
Fiume,	180 bgs.	
Lead Acetate—		
Hamburg,	20 cks.	
Logwood—		
New York,	80 bxs.	
Manganese—		
New York,	64 cks.	
Manganese Ore—		
Fiume,	219 bgs.	
Paint—		
Montreal,	10 pks.	
New York,	2 2 cs.	
Paraffin Scale—		
New York,	100 brls.	
Phosphate of Lime and Rock—		
Garston,	4,080 bgs.	
Potash—		
Montreal,	11 brls.	J. Rankine & Son
Rotterdam,	54 cks.	J. Rankine & Son
Potassium Oxalate—		
Rotterdam,	5 cks.	J. Rankine & Son
Pumice Stone—		
Messina,	4 cks. 4 brls. 4 bgs.	
Quicksilver—		
Aquilas,	19 dms.	
Rosin—		
New York,	551 brls.	
Salt—		
Hamburg,	142 t.	
Saltpetre—		
Hamburg,	3 cks.	
Soap—		
Nantes,	2 cks.	
New York,	52 bxs.	
Sodium Naphthol—		
Rotterdam,	2 cks.	J. Rankine & Son
Sodium Sulphate—		
Antwerp,	5 cks.	
Starch—		
Rotterdam,	5 cs.	J. Rankine & Son
Fiume,	20 bgs.	W. Stettin & Son
"	12	J. Anderson & Co.
"	10	
New York,	450 900 bxs.	
Sulphur—		
Palermo,	13 cks. 668 bgs.	
Tartar—		
Bordeaux,	26 cks.	
Tartaric Acid—		
Fiume,	5 brls.	Stoeter & Co.
Yarnish—		
New York,	19 brls. 1 cs.	
Waste Salt—		
Hamburg,	152 t. 550 bgs. 1 ck.	
Wood Pulp—		
Gothenburg,	1,503 bls.	Henderson, Craig & Co., Ltd.
Hamburg,	390	
Christiania,	1,916	5 cs.
Zinc Oxide—		
New York,	100 brls.	J. Rankine & Son
Rotterdam,	25 cks.	J. Rankine & Son
Antwerp,	20	
Zinc White—		
Rotterdam,	35 cks.	J. Rankine & Son

TYNE.

Week ending May 22nd.

Alum Earth—		
Hamburg,	27 cks.	Tyne S. S. Co.
Antimony Ore—		
Malaga,	20 cks.	Cookson & Co.
Barium Chloride—		
Rotterdam,	700 bgs.	
Barytes—		
Antwerp,	300 bgs.	Tyne S. S. Co.
Castor Oil—		
Antwerp,	29 brls.	Tyne S. S. Co.
Cod Oil—		
Drontheim,	6 brls.	
Colours—		
Hamburg,	2 cks.	Tyne S. S. Co.
Kieselguhr—		
Bergen,	120 bgs.	

one—		
6 crts.	Tyne S. S. Co.	
3 cks.	Tyne S. S. Co.	
530 brls.	Furness, Withy, & Co.	
6 cks.	Tyne S. S. Co.	
100 cyldrs.		
21 cks.	Tyne S. S. Co.	
107 cs.	Tyne S. S. Co.	
44 cs.	Tyne S. S. Co.	
1 ck.	Tyne S. S. Co.	
9 brls.	Furness, Withy, & Co.	

Wood Pulp—		
Skien,	300 bls.	
Göteborg,	100 pks.	
Zinc Oxide—		
Antwerp,	1 brl.	Tyne S. S. Co.
Zinc White—		
Rotterdam,	10 cks.	Tyne S. S. Co.

GOOLE.

Week ending May 19th.

Acetic Acid—		
Rotterdam,	8 crbys.	
Alizarine—		
Rotterdam,	32 brls.	
Aniline—		
Hamburg,	5 cks.	
Barytes—		
Rotterdam,	11 cks.	
Caoutchouc—		
Boulogne,	2 cs.	

Dyestuffs (otherwise undescribed)		
Rotterdam,	377 cks. 97 cs.	
Boulogne,	1 6 81 pks.	
Manganese Ore—		
Hamburg,	6 cks.	
Manure—		
Hamburg,	20 bgs.	
Potash—		
Hamburg,	3 cks.	20 dms.
Calais,	8	
Dunkirk,	19	20
Potassium Sulphate—		
Rotterdam,	100 cks.	
Saltpetre—		
Rotterdam,	200 bgs.	
Soda—		
Rotterdam,	2 cks.	
Verdigris—		
Boulogne,	1 ck.	
Waste Salt—		
Hamburg,	180 t.	

GRIMSBY.

Week ending May 22nd.

Aniline Colours—		
Hamburg,	2 cks.	12 pks.
Antwerp,		29
Caoutchouc—		
Hamburg,		3 pks.
Rotterdam,	2 cs.	
Antwerp,	2	
Chemicals (otherwise undescribed)		
Hamburg,	30 cks. 9 cs.	
Indigo—		
Rotterdam,	5 cs.	
Salt—		
Rotterdam,	5 bgs.	
Tungsten Metal—		
Hamburg,	10 cs.	
Waste Salt—		
Hamburg,	520 bgs.	

EXPORTS OF CHEMICAL PRODUCTSOF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending May 26th.

7 pks.	£17
1 t. 14 c.	£9
38 t. 14 c.	£94
1 t.	£28
10 c.	£17
2 t. 10 c.	72
41 cks.	£302
10 t.	£80
100	787
130	1,040
202 8 c.	1,600
315 17	935
298 4	2,416
105	1,485
9 c.	£100
2 t. 12 c.	£19
80 cks.	£630
20 dms.	7
20	23
108	722
42 tubes	£16
6 cs.	60
8 c.	£8
3	6
7	9
2 t.	52
6	15
5	90
13	14
10	7
11 cs.	£48
2	26
6 kgs.	12
18 dms.	60
13	20
37 pkgs.	44
20	10
2	57
7	15
35 cks.	450
31 pks.	423
50	
5 kgs.	£30
2	12
5	29
1 c.	5
4 1 cs.	31
10	56
1 ck.	29
18	114
14 dms.	£500

Aniline Oil		
New York,	7 dms.	£250
Aniline Salts		
New York,	39 cks.	£270
Anthracene		
Dusseldorf,	46 cks.	£270
Benzol		
Hamburg,	68 cks.	£434
Creosote		
New York,	1,500 cks.	£869
Creosote Oil		
San Francisco,	5,030 cks.	£2,766
Naphtha		
Philadelphia,	13 dms.	£125
Naphthaline		
Calcutta,	10 cks.	£12
Amsterdam,	25 bgs.	20
Rotterdam,	20	42
Paris,	51	35
Hamburg,	688	189
Antwerp,	400	217
Pitch		
Hamburg,	15 brls.	£30
Constantinople,	150	42
Boston,	200 cks.	60
Dunkirk,	164 t.	194
Leghorn,	1,275	1,600
Antwerp,	420	615
Calcutta,	25	15
Hochfeld,	430	660
Stockholm,	40	20
New York,	600 bgs.	383
Pyridine		
Cologne,	11 brls.	£125
Hamburg,	5 dms.	180
Rotterdam,	9 cks.	125
Antwerp,	11	151
Tar		
Danzig,	350 cks.	£173
Sydney,	30 brls.	27
E. London,	40 dms.	7
Göteborg,	100	62
Durban,	60	450
Stockholm,	150	56
Hamburg,	1,939	952
Tar Oil		
Boston,	250 brls.	£140
Tar Salts		
Brussels,	4 cks.	£40
Coal Products (otherwise undes.)		
Adelaide,	125 dms.	£24
New York,	10 cks.	15
Copper Sulphate—		
Antwerp,	30 t.	£490
Treport,	5 3 c.	80
Paris,	5 4	80
Zanzibar,	1 2	19
B. Ayres,	5	6
Cream of Tartar—		
Wellington,	3 c.	£12
E. London,	10	42
Cape Town,	4	16
Disinfectants—		
Cape Town,	100 cks. 2 cs.	£48
Hamburg,	25	125
Antwerp,	10 15	96
Brussels,	2	30
Wellington,	23	22
Canterbury,	5	17
Manure—		
Mackay,	14 c.	£14
Barbadoes,	172 t. 11	1,320

Demerara,	36	290
Bordeaux,	15	60
Cullera,	397 11	1,230
Martinique,	55 12	330
Trinidad,	80	168
Madeira,	3 6	18
Auckland,	52 10	230
Phosphate of Lime—		
New York,	1 t. 3 c.	£35
Potassium Carbonate—		
Philadelphia,	1 t. 3 c.	£26
Potassium Chlorate—		
Antwerp,	14 kgs.	£25
Rotterdam,	10 c.	25
Potassium Cyanide—		
Melbourne,	2 t. 10 c.	£210
Sydney,	2	163
Pt. Elizabeth,	6 10	425
Potassium Prussiate—		
Genoa,	4 cks.	£47
Antwerp,	3	46
Montreal,	20	350
Philadelphia,	10	161
Saltpetre—		
Oporto,	10 t. 12 c.	£215
Wellington,	10	11
Rio de Janeiro,	2 6	50
Sheep Dip—		
Durban,	28 cs.	£22
E. London,	5 t. 10 c.	29
Pt. Elizabeth,	1,750 pks.	250
Hobart,	2 1.	12
Adelaide,	170	82
Melbourne,	200	200
Soda Crystals—		
Newcastle,	15 t.	£41
Zanzibar,	1 5 c.	5
Sodium Hyposulphite—		
Lyttelton,	2 t. 2 c.	£11
Sodium Prussiate—		
Montreal,	5 cks.	£39
Sulphur—		
Newcastle,	67 brls.	£47
E. London,	10 t. 20 kgs.	£101
Durban,	70 cs.	15
Cape Town,	24 10 c. 50 cks	
100 kgs.		325
Philadelphia,	6 18	212
Sulphuric Acid—		
Colombo,	11 cs.	£13
Cape Town,	30 10 carboys	25
Tartaric Acid—		
E. London,	2 c.	£11
Durban,	2	12
Hiogo,	2 t.	220
Wellington,	3	18
St. Petersburg,	13	82

LIVERPOOL.

Week ending May 26th.

Acetic Acid—		
Lisbon,	13 c.	£8
Alum—		
E. London,	15 c.	£5
Callao,	3 t. 14	1 q.
Boston,	12 11	3
Guayaquil,	17 3	5

Melbourne,	6 2 2	29
Alexandria,	7	35
Montreal,	17 7 1	92
Ammonia (Liquid)—		
Savannah,	2 c.	£8
Ammonium Carbonate—		
Bilbao,	1 t. 1 c.	£24
Copenhagen,	1	28
Montreal,	10 1 q.	13
Ammonium Chloride—		
Alexandria,	1 t.	£32
Philadelphia,	19 12 c. 2 q.	445
Galatz,	1 9	14
Bilbao,	1 1	31
Trieste,	1	31
Odessa,	7 4	223
Genoa,	5 19 1	118
Rosario,	12	15
Rotterdam,	1	18
Ammonium Sulphate—		
Teneriffe,	9 t. 17 c.	£100
Sourabaya,	227 7 2 q.	1,819
Canaria,	47 10 3	384
Valencia,	329 12 2	2,770
Philadelphia,	50 7	321
Las Palmas,	5	38
Bleaching Powder—		
Alicante,	30 cks.	
Antwerp,	78 3 brls.	
Baltimore,	195 60	
Bilbao,	26	80 cs.
Bombay,		
Boston,	329	5
B. Ayres,	5	
Genoa,	29	15
Hamburg,		
Leghorn,	30	
Montreal,	44	
Naples,	69	
New York,	374	
Philadelphia,	52	
St. John's, Nfld.,	4	
Vera Cruz,	136	
Shanghai,	14 c. 3 q.	£7
Boracic Acid—		
Genoa,	1 t.	£30
Odessa,	11 c. 2 q.	20
Hiogo,	10	14
Borax—		
Antwerp,	16 t.	2 q. £321
Hamburg,	26 16 c. 3	531
Ibrail,	6	6
Melbourne,	10	10
Rotterdam,	4 17 3	90
B. Ayres,	9 1	9
Genoa,	4 18 1	90
Talcahuano,	4 1	5
Calcium Chloride—		
San Francisco,	9 t. 19 c.	£22
B. Ayres,	4	10
Carbon Bisulphide—		
Antwerp,	3 t.	1 q. £35
Carbolic Acid—		
Constantinople,	1 cs.	£7
Hamburg,	3 t. 4 c.	235
Caustic Potash—		
Baltimore,	10 c.	£13
Caustic Soda—		
Antwerp,	15 dms.	
Baltimore,	400 20 brls. 50 pns.	
Barcelona,	302	
Boston,	50 181	

ducts (otherwise undescribed)—
Hamburg, 242 bgs.

Manure—
Hamburg, 26 cs.
12 cks.
4

Mineral White—
Bergen, 133 cks.
(otherwise undescribed)
6 cs.
2

Paint—
Bergen, 20 dms.

Painters' Colours—
Amsterdam, 31 brls.
6

amine—
Hamburg, 20 cks.
3 cks.

amine—
Hamburg, 271 t. 15 c.
13 cks.

amine—
Hamburg, 1 cs.
32 dms.

amine—
Hamburg, 31 cks.
54 cks.

amine—
Hamburg, 1 brl.
1

amine—
Hamburg, 4 cks.

HULL.

ending May 22nd.

amine—
Hamburg, 16 cks.
4 dms.

amine—
Hamburg, 4
100 bgs.

amine—
Hamburg, 7 dms.

amine—
Hamburg, 16 cks.

amine—
Hamburg, 10 cks.

amine—
Hamburg, 32 cks.

amine—
Hamburg, 22
15 5
2494 slbs. 1
26 c.

amine—
Hamburg, 10
20 92 5
5 12
12 60 100
3

amine—
Hamburg, 15

amine—
Hamburg, 1,400 c.
1,733
103
51
35
103
249
1,448
153
236
50

amine—
Hamburg, 50 brls.
30
5
15

amine—
Hamburg, 1 cs.
12 bgs.
1 dm.
7 cks.
1 65 bgs.

amine—
Hamburg, 4 cks.
5 bgs.

amine—
Hamburg, 100 c.
388
760
113
35
461

Hamburg, 690
Harlingen, 99

Manure—
Harburg, 650 t.
Stolpebund, 470

Mineral White—
Bergen, 20 bgs.

Paint—
Bergen, 1 ck.

Painters' Colours—
Amsterdam, 3 cks.
Antwerp, 24 6 cs. 1 pk.
27 dms.

Painters' Colours—
Abo, 120
Bremen, 45
Christiania, 18 2
Christiansund, 40 pks.
Christiansund, 15 dms.
Copenhagen, 2 1
Danzig, 34 2 25 kgs.
Drontheim, 8 124
Gothenburg, 14 1 100 pks.
Ghent, 2
Hamburg, 66
Rouen, 23
Rotterdam, 14 24
Stettin, 13 1 2,954 c.
St. Petersburg, 1
Stockholm, 62 3

Pitch—
Antwerp, 95 t.
Dunkirk, 241

Soap—
Amsterdam, 1 cs.
Abo, 1
Copenhagen, 1
Drontheim, 25
Ghent, 2
Hamburg, 2
Reval, 1
Stockholm, 2

Tallow—
Amsterdam, 31 cks.
Abo, 16
Stockholm, 5

Tar—
Amsterdam, 15 cks.
Antwerp, 1
Christiania, 10
Copenhagen, 5
Dunkirk, 25
Danzig, 4
Hamburg, 264
Rotterdam, 3
Stavanger, 3
Stettin, 6

Varnish—
Antwerp, 3 cks. 1 cs.
Christiansund, 1
Stettin, 7
Stockholm, 2

White Lead—
Bergen, 18 kgs.

GLASGOW.

Week ending May 27th.

Bleaching Powder—
Melbourne, 13 t. 2 c.
Calcutta, 47 2

Boracic Acid—
Japan, £34. 115.

Borax—
Canada, £20

Citric Acid—
Rotterdam, £6

Coal Products—
Benzol
Hamburg, 6 t.
Creosote Oil
Antwerp, Pitch
Antwerp, 710 t.

Coal Products—
Canada, 187
Hamburg, 126
Calcutta, 80
Rangoon, 289
Bombay, 289

Pitch and Tar—
Colombo, £50
Amsterdam, 8
Christiania, 10
Danzig, 345 brls.
Madras, 77

Coal Products (otherwise undescribed)—
Rotterdam, £905
Malmo, 64

Cod Oil—
Adelaide, £20. 175.

Dextrine—
New York, 17 t. 11 c.

Dyestuffs (otherwise undescribed)—
Amsterdam, £204
Canada, 119
Montreal, 34

Extracts—
Almonte, £231
Hespeler, 33
Toronto, 119
Victoria, 61
Waterloo, 53
Montreal, 139

Farina—
Rio de Janeiro, £31. 105

Glucose—
Ootacamund, 2 t. 16 3/4 c.

Lactic Acid—
Canada, £20

Linseed Oil—
China, 1 t. 10 3/4 c.
Straits Settlements, 4 10
Adelaide, 4 3/4
Mauritius, 2 8
Montreal, 8 11 1/2
Rio de Janeiro, 4 2 1/2

Logwood—
Canada, £20

Manganese—
Rotterdam, 10 t. 3 c.

Methyl Alcohol—
Hamburg, £70

Paint—
Calcutta, qty.
Japan, £55
Straits Settlements, 53
Siam, 124
Porto Alegre, 20

Painters' Colours—
China, qty.
Siam, 11
Rotterdam, 11
Cape Town, 11
Valparaiso, £28. 105.

Potassium Bichromate—
Japan, £316
Ghent, 216

Potassium Cyanide—
Western Australia, £390
Canada, 20

Soap—
Madras, 2 t. 5 1/2 c.

Sodium Bichromate—
Almonte, £23

Starch—
Rio de Janeiro, £54

Sulphuric Acid—
Rangoon, £333

Tallow—
Rotterdam, 10 t. 3 c.

Treacle—
Christiania, 5 t. 9 3/4 c.

White Lead—
Natal, £58

TYNE.

Week ending May 22nd.

Alkali—
Amsterdam, 27 t. 5 c.
Rotterdam, 2 4
St. Petersburg, 14 15
Hamburg, 5 15
Gothenburg, 5 7
Christiania, 5 13

Ammonium Chloride—
Hamburg, 16 c.

Anthracene—
Rotterdam, 49 t. 4 c.

Antimony—
Hamburg, 11 t.
Rotterdam, 12 10 c.
St. Petersburg, 95

Arsenic—
Amsterdam, 15 c.

Barium Carbonate—
Rotterdam, 151 t. 6 c.

Bleaching Powder—
Amsterdam, 62 t. 11 c.
Hamburg, 11 6
Antwerp, 15 2
Rotterdam, 8 7

Bergen, 30 2
Gothenburg, 15 6
Copenhagen, 6 18
Christiania, 20 14

Borax—
Aalborg, 1 t. 2 c.

Carbolic Acid—
Amsterdam, 5 t. 15 c.

Castor Oil—
Gefle, 17 c.

Caustic Soda—
Amsterdam, 5 t. 8 c.
Hamburg, 5 16
Antwerp, 12 10
Rotterdam, 2 8
Barcelona, 53 17
Harlingen, 5 3
St. Petersburg, 60 7
Wasa, 38 7
Gothenburg, 7 17
Copenhagen, 9 7
Arendal, 2 18

Litharge—
Hamburg, 3 t. 17 c.
Copenhagen, 10

Magnesia—
Hamburg, 1 t. 13 c.
Antwerp, 10
Barcelona, 3 18

Paint—
Antwerp, 1 t. 10 c.
Copenhagen, 1

Painters' Colours—
Ergasteria, 1 q.

Rosin Oil—
Rotterdam, 1 t. 2 c.

Soda—
Amsterdam, 31 t. 1 c.
Rotterdam, 28
Gefle, 50 1
Svendsborg, 5 5
Wasa, 20 2
Christiania, 30 11

Soda Ash—
Antwerp, 1 t. 7 c.
Christiania, 1 6

Sodium Hyposulphite—
Amsterdam, 10 t. 6 c.

Sodium Sulphate—
Antwerp, 50 t. 2 c.

Sulphur—
Gothenburg, 105 t.

White Lead—
Copenhagen, 1 t. 6 c.

GOOLE.

Week ending May 19th.

Alkali—
Boulogne, 2 cks.

Chemicals (otherwise undescribed)—
Amsterdam, 20 cks.
Boulogne, 1
Hamburg, 10 dms.

Coal Products (otherwise undescribed)—
Amsterdam, 1 ck.
Boulogne, 4 6 pks.
Ghent, 2 tins
Hamburg, 29
Rotterdam, 6 1 cs.

Dyestuffs (otherwise undescribed)—
Hamburg, 141 cks.

Manure—
Hamburg, 295 bgs.

Pitch—
Antwerp, 697 t.
Dunkirk, 207

GRIMSBY.

Week ending May 22nd.

Acids—
Savannah, 12 cs.

Chemicals (otherwise undescribed)—
Helsingborg, 1 brl.
Malmo, 2 cks.
Hamburg, 23 cs. 12 pks.

Coal Products (otherwise undescribed)—
Dieppe, 26 cks. 51 brls.
Hamburg, 50
Rotterdam, 2 dms.

Manure—
Hamburg, 267 bgs.

Sodium Peroxide—
Rotterdam, 10 cs.

PRICES CURRENT.

WEDNESDAY, JUNE 2ND, 1903.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—				£	s.	d.	Lime, Acetate (brown) (ex ship)				£	s.	d.	
Acetic, 25 % and 40 %	per cwt.	5/10½	& 8/9				(grey) (ex ship)	per ton	5	0	0			
" Glacial	"	40/-					Magnesium (ribbon and wire)	per oz.	8	5	0			
Arsenic S.G., 2000°	"	1	4	0			" Chloride (ex ship)	per ton	1	10	0			
Fluoric	per lb.	0	0	3¼			" Carbonate	per cwt.	1	17	6			
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10			" Calcined Magnesia	per ton	9	0	0			
" (Cylinder), 30° Tw.	"	0	3	0			" Sulphate (Epsom Salts)	per ton	2	15	4			
Nitric 80° Tw.	per lb.	0	0	1½			Manganese, Sulphate	per cwt.	2	10	0			
Nitrous	"	0	0	1¼			" Borate	per cwt.	2	10	0			
Oxalic	nett	0	0	3½			" Ore, 70 %	per ton	3	10	0			
Phosphoric, 1750°	"	0	0	11½			Methylated Spirit, 61° O.P.	per gallon	0	1	0			
Picric	"	0	0	11			Naphtha (Wood), Solvent	"	0	2	0			
Sulphuric (fuming 50 %)	per ton	15	10	0			" Miscible, 60° O.P.	"	0	3	0			
" (monohydrate)	"	5	10	0			Oils:—							
" (Pyrites, 168°)	"	3	0	0			Cotton-seed	per ton	15	10	0			
" 150°	"	1	5	0			Linseed	"	16	0	0			
" (free from arsenic, 145°)	"	1	7	6			Stearine	per ton	19	10	0			
Sulphurous (solution) S.G. 1025	"	3	0	0			Phosphorus (yellow)	per lb.	0	2	0			
Tannic (pure)	per lb.	0	1	2½			" (red)	"	0	2	0			
Tartaric	"	0	1	1			Potassium (metal)	per oz.	0	3	7			
Arsenic, white powdered	nett per ton	22	10	0			" Bichromate	per lb.	0	0	4½			
Alum (loose lump)	"	4	10	0			" Carbonate, 90% (ex ship)	per ton	16	15	0			
Alumina Sulphate (pure)	"	4	2	6			" Chlorate	per lb.	0	0	4			
Aluminoferrous	"	2	3	6			" Cyanide, 98%	"	0	0	11			
Aluminium (Ingot metal 98/99¼ %)	nett per cwt.	7	17	6			" Hydrate (Caustic Potash) 90%	per ton	24	0	0			
Ammonia, Anhydrous	per lb.	0	1	3			" " (Caustic Potash) 75/80%	"	20	15	0			
" 880=28° B.	"	0	0	2¼			" " (Caustic Potash) 70/75%	"	19	15	0			
" =24° B.	"	0	0	1¼			" Nitrate (refined)	per cwt.	1	1	0			
" Carbonate	nett	0	0	3			" Permanganate	per cwt.	3	15	0			
" Muriate	per ton	18	5	0			" Prussiate Yellow	per lb.	0	0	5½			
" (sal-ammoniac) 1st & 2nd	per cwt.	33/-	&	31/-			" Sulphate, 90 % (ex ship)	per ton	9	15	0			
" Nitrate	per ton	32	0	0			" Muriate, 80 % (do.)	"	8	10	0			
" Phosphate	per lb.	0	0	4½			Silver (metal)	per oz.	0	2	5½			
" Sulphate (grey) London	per ton	7	10	0			Sodium (metal)	per lb.	0	2	1			
" (grey) Hull	"	7	10	0			" Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0			
Aniline Oil (pure)	per lb.	0	0	6¼			" " (Caustic Soda-ash) 48 %	"	4	5	0			
Aniline Salt	"	0	0	6			" " (Carb. Soda-ash) 48%	"	4	0	0			
Antimony	per ton	30	15	0			" " (Alkali) 58 %	"	3	17	0			
" (tartar emetic)	per lb.	0	0	9			" " (Soda Crystals)	"	2	5	0			
" (golden sulphide)	"	0	0	10			" Acetate (ex-ship)	"	12	5	0			
Barium Chloride	per ton	6	12	6			" Arseniate, 45 %	"	15	0	0			
" Carbonate (native)	"	3	10	0			" Chlorate	per lb.	0	0	4½			
" Sulphate (native levigated)	"	42/6	to	65/-			" Borate (Borax)	net, per ton	16	0	0			
Bleaching Powder, 35 %	nett	6	7	6			" Bichromate	per lb.	0	0	3½			
" Liquor, 7 %	"	3	10	0			" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	0	0	0			
Bisulphide of Carbon	"	12	0	0			" " (74 % Caustic Soda)	"	8	2	6			
Chromium Acetate (crystal)	per lb.	0	0	6			" " (70 % Caustic Soda)	"	7	2	6			
Calcium Chloride	per ton	2	2	6			" " (60 % Caustic Soda)	"	6	2	6			
China Clay (at Runcorn) in bulk	"	15/-	to	30/-			" " (pure liquor 90° Tw.)	"	3	12	6			
Coal Tar Products and Dyes:—														
Alizarine (artificial) 20 %	nett per lb.	0	0	6¾			" " 77/78 % powdered (99 % hydrate)	"	12	15	0			
Magenta	"	0	3	9			" Bicarbonate	"	6	10	0			
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	0	6½			" Hyposulphite	"	5	0	0			
Benzol, 90's	per gallon	0	1	9			" Manganate, 25%	"	15	0	0			
" 50/90	"	0	1	11			" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	7	0			
Carbolic Acid (crude 60°)	per gallon	0	2	3			" Nitrite, 98 %	per ton	30	0	0			
" (crystallised 40°)	per lb.	0	0	7¼			" Phosphate	"	11	0	0			
" (liquid 95/97 %)	per gallon	0	1	1			" Silicate (glass)	per ton	4	10	0			
Creosote (ordinary)	"	0	0	2			" " (liquid, 100° Tw.)	"	3	10	0			
" (filtered for Lucigen light)	"	0	0	2½			" Stannate, 40 %	per cwt.	3	2	9			
Crude Naphtha 30 % @ 120° C.	"	0	0	11			" Sulphate (Salt-cake)	per ton	0	19	0			
Grease Oils, 22° Tw.	per ton	2	15	0			" " (Glauber's Salts)	"	1	7	6			
Pitch, f.o.b. Liverpool or Garston	"	1	2	0			" Sulphide	"	6	15	0			
Solvent Naphtha, 90 % at 160°	per gallon	0	1	8			" Sulphite	"	5	0	0			
Copper	per ton	48	17	6			Strontium Hydrate, 100%	"	8	0	0			
" Sulphate	"	16	5	0			Sulphocyanide Ammonium, 95 %	per lb.	0	0	6¼			
" Oxide (copper scales)	"	44	10	0			" Barium, 95 %	"	0	0	1½			
Glycerine (crude)	"	31	0	0			" Potassium	"	0	0	6¼			
" (distilled S.G. 1250°)	"	62	0	0			Sulphur (Flowers)	per ton	7	10	0			
Iodine	nett, per oz.	0	0	7½			" (Roll Brimstone)	"	6	10	0			
Iron Sulphate (copperas)	per ton	1	10	0			" Brimstone: Best Quality	"	4	15	0			
" Sulphide (antimony slag)	"	2	0	0			Superphosphate of Lime (26%)	"	2	5	0			
Lead (sheet) for cash	"	13	2	6			Tallow	"	18	0	0			
" Litharge Flake (ex ship)	"	14	15	0			Tin Crystals	per lb.	0	0	4½			
" Acetate (white)	"	22	0	0			" English Ingots	per ton	65	0	0			
" " (brown)	"	15	0	0			Zinc Spelter	"	17	5	0			
" Carbonate (white lead) pure	"	16	15	0			" Chloride (solution, 100° Tw.)	"	4	17	6			
" Nitrate	"	19	0	0			" Sulphate, Crystal	"	5	2	0			

THE CHEMICAL TRADE JOURNAL

AND
OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

No. 525.

SATURDAY, JUNE 12, 1897.

Vol. XX.

Contents.

	PAGE		PAGE
Current Topics	393	Oil Trade Developments at Manchester	400
The Rapid Testing of Lead Ores ..	394	Trade Notes	401
The Patent List	395	Tar and Ammonia Products	401
Abstracts of Latest Complete Specifications	395	Miscellaneous Chemical Market ..	401
Legal Intelligence	395	The Metal Markets	401
Estimating Silica in Blast-Furnace Slag	396	Liverpool Oil and Colour Market ..	401
Answers to Correspondents	396	Hull Paint, Oil, and Colour Report ..	401
Exports of Alkali and Bleach	397	West of Scotland Chemicals	401
The Keystone Chemical Filter	397	Tyne Chemical Report	402
The U.S.A. Tariff Bill	398	New Companies	402
Liquid Fuel for Locomotives	399	Imports	402
Reports of Companies	399	Exports	405
Exports of Petroleum from U.S.A. ..	400	Prices Current	408

Notices.

All communications for the *Chemical Trade Journal* should be addressed, and Cheques and Post Office Orders made payable to—

DAVIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

The Terms of Subscription, commencing at any date, to the *Chemical Trade Journal*,—payable in advance,—including postage to any part of the world, are as follows:—

Yearly (52 numbers)	12s. 6d.
Half-Yearly (26 numbers)	6s. 6d.
Quarterly (13 numbers)	3s. 6d.

Reader are invited to forward items of intelligence, or cuttings from local newspapers, of interest to the trades concerned.

Readers will oblige by making their remittances for subscriptions by postal or Post Office Order, crossed and payable to "Davis Bros."

Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

30 Words and under	2s. 6d. per insertion.
Each additional 10 words	0s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

30 Words and under	1s. 6d. per insertion.
Each additional 10 words	0s. 3d.

Trade Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

CURRENT TOPICS.

THE NITRATE OF SODA CRISIS.

IN the course of the last three years it has been our unpleasant duty to dwell somewhat upon the dark side of the nitrate of soda industry.

Though it does not mend matters to meet troubles half-way, yet in industrial affairs it is always necessary to hope-fully prepare for the worst, and, as there were evidently bad times in store, we did not hesitate in the past to point out the possibilities of disaster.

It is not pleasant to find that so many of the possibilities have become circumstances of pressing importance.

It is customary at this time of the year for the reports of nitrate companies to crop up like daisies, and so they are doing, only these reports show that the companies, although as plentiful as these simple flowers, are not quite so flourishing.

The Combination has not done what was expected of it, or, rather, what nitrate directors expected at its hands. To many it seems to have done quite as much as could be looked for, when its construction as a whole is considered. Nevertheless the fact remains that between exaggerated hopes of the Combination, and a certain, presumably unforeseen, falling off in the consumption, nitrate companies have come to the ground. Dividends are the exception, which painfully prove this statement, for even companies that made reasonable profits, forbear to divide them, deeming it wiser to provide for the future by carrying them forward, against the time to come. This, in itself, is only too significant, and can hardly be taken as a favourable augury.

It would seem that the principles of the Combine are fictitious. By restricting the output it may be possible to sustain prices, and mayhap advance them to a certain extent, but the latter possibility is much hampered by the attendant slackened demand and competition. But even increased profit on a reduced turnover is no more productive of dividends than a larger business and nominal profits. At the same time working expenses and the cost of keeping the oficinas, fit while shut down, are much about the same in either case. Where the dividend making comes in (and this is the sole object of all this manœuvring in spite of its cloak, it is not so easy to see. A net profit of £230. is not much to add to the sum of nearly £16,000. brought forward from last year, which is what one company has done as the result of its year's work—a company, moreover, that was stated by its chairman, a year or so ago, to be producing its nitrate as cheaply as any company in Chili.

An effort is being made to botch up some of the holes in the Combination scheme, but so far little seems to have been achieved. Some companies have suffered greatly under the Combine, and although it is apparently for the commonweal of the industry, it is hard to persuade the individuals who

suffer most, to appreciate the nobility of their self-sacrifice. They are apt to take a more selfish and captious view of the matter.

All things point to a further reduction of the output, but this step is not taken with any hope of bettering prices, but because it is an absolute necessity to prevent prices falling any lower. Such a step will, to put it mildly, must be most discouraging to a number of companies.

One way and another, therefore, the prospect is not pleasant. The lowering sky seems to portend a storm, and we are inclined to think that the sooner it bursts, the better, although it is bound to do much damage, if not prove fatal in some cases.

CHECKING ADVERTISING ABUSES.

There are two ways of doing everything, and in regard to the checking of advertising abuses, our aesthetical worthies in this country have shown us the high-handed methods by which they would exterminate the Vandalls who desecrate the fair earth in their desire to persuade the nations of the excellence and wide-spread use of their soaps, blacking, polishes, enamels, pickles, sauces, and whatnot.

We have analysed the proposals of these purists sufficiently in the past, but in addition to criticising, we would venture to submit constructive suggestions, and on this account wish to call the attention of these supersensitive individuals to the difference between their ideas of checking this evil and the method adopted by their equally fastidious foreign neighbours. The latter do not attempt to deny the existence of artistic merit, in many pictorial advertisements, and consequently follow the only other logical alternative, and seek to foster this semi-mundane branch of art, even to the extent of holding an exhibition of artistic and coloured advertisements at St. Petersburg, under the auspices of the Imperial Society for the Encouragement of Art.

In a sense it is but a trifling matter, yet in the face of the growing foreign competition we have to contend with, it is hard to say how far the absence of this tolerant spirit at home is not responsible for the difficulty we seem to have in holding our own. We succeed in doing it so far, but those who should help, instead of retard, are often bent on a policy that lets rather than lightens.

AMALGAMATION IN THE VARNISH TRADE.

An interesting amalgamation of English and American interests has recently taken place in the varnish trade, the incident being the sequel to the various rumours that have been current for some months.

It now appears that the American firm of Messrs. Pratt and Lambert has been re-organised, with a capital of £70,000, of which the controlling interest has been taken by Messrs. Robert Ingham Clark and Co., Ltd., of London, Paris, and Hamburg, whose own paid-up capital is £300,000. It is the purpose of the combination to add to the line of common varnishes, made by Pratt and Lambert, the high-grade finishing varnishes made by the English concern, whose trade marks and brands will be controlled in the United States and Mexico by the American house. Already a factory plant is being reconstructed on Ninth Street, Long Island City, at which the Clark goods will be made, while the Pratt and Lambert works on Fourth Street are also being enlarged, with a view to furnishing increased storage accommodation. The factory at Chicago will be continued on its present line of products, all goods bearing the Clark brand being made at the new works at Long Island City, although a full stock will

be carried by the Chicago house. This combination has been brought about through the appreciation by Mr. Clark of the fact that the surest way to build up a trade brand in America was by manufacturing there, and the desire on the part of Pratt and Lambert to affiliate with a concern having an established reputation for high quality goods, which they have never been equipped for making.

THE RAPID TESTING OF LEAD ORE

IN the course of a paper on the Estimation of Lead in Lead Ore read by Mr. R. K. Meade before the American Chemical Association, the drawbacks of the usual wet assay methods are pointed out, shown that the more accurate methods are decidedly slow, and the following system of analysis is suggested:—

Weigh 1 gramme of the ore if rich, more if poor, into a dish, cover with a watch-glass and add 40 to 50 cc of a 10% solution of sulphuric acid (1.84 sp. gr.), and three parts nitric acid (1.42 sp. gr.). Heat the covered dish on a hot plate, water sand-bath until the action of the acids on the ore has ceased. Then remove the watch-glass and rinse into the dish 10 to 15 cc. hydrofluoric acid to the solution and evaporate until white fumes of sulphuric acid begin to come off. It is better to conduct the evaporation under a hood for obvious reasons. Remove the dish from the source of heat and cool. Dilute to about 100 cc. water, digest until all soluble salts are in solution, and filter, first with a 2% solution of sulphuric acid, and then with alcohol-soluble filter paper, and ignite precipitate separately. Weigh sulphate, and calculate per cent. of lead present in the ore.

To test the method, several lead-bearing minerals were assayed for lead by the method (A) outlined by Fresenius (Anal., 213), and then by the above method (B), after ascertaining that calcium, barium, and strontium were absent, with the following results:

	Method A.	Method B.
	Per cent. lead.	Per cent.
Galenite.....	77.34	77.3
Pyromorphite	75.26	75.2
Cerussite	76.46	76.4

To further test the method, and especially to see if any lead was volatilized as a fluoride, a solution of lead nitrate was evaporated to dryness, and the residue was treated with sulphuric acid. Twenty-five cc. of this solution, on evaporation with sulphuric acid, gave 0.4297 gram of lead sulphate as an average of six determinations.

The same quantity, on evaporation with sulphuric acid and by the method (B), gave 0.4280 gram of lead sulphate as an average of six determinations.

Barium and strontium are rarely found associated with lead. Calcium, when present in galena as calcite, may be removed by treating the ore with hydrochloric acid and filtering. The filtrate contains the calcium; the residue will hold the lead and may be treated with hydrofluoric, sulphuric and nitric acids, and the process repeated as above.

When the ore contains calcium, in small quantities only, may be hindered from interfering with accurate results by precipitating lead sulphate four or five times by decantation thoroughly upon the filter with a 2% solution of sulphuric acid. Calcium sulphate, being slightly soluble in the acid solution, is washed off by the wash water. The writer has found it possible to remove as much as 4% of calcium sulphate by this means.

The analysis of a lead ore can be made very nearly as quick by this method as volumetrically and much more satisfactorily.

CEMENT TRADE.—A meeting of this section of the London Association of Commerce was held under the presidency of Mr. Charles (chairman), on May 10th, to consider the report made to the Special Admixtures Committee, which was appointed at the meeting of the Association on May 18th, 1894 to investigate the question of the admixtures of kieselguhr and other substances with Portland cement. A debate on Mr. White's motion that the report of the committee be adopted was held. Mr. W. C. Anderson's amendment that the report be adopted with the deletion of the "recommendation" at the end of the report was rejected. Mr. Patrick proposed and Mr. Andrews seconded an amendment to the effect that the "recommendation" of the committee be amended so as to permit the use of an addition not exceeding 1% of gypsum for the purpose of regulating the setting. Mr. Anderson withdrew his amendment in favour of Mr. Patrick's. After considerable discussion Mr. Patrick's amendment was adopted by 14 to 10 votes. The best mode of carrying out the recommendation of the report and the question of finance were referred to the Admixtures Committee for consideration and report.

The Patent List.

This list is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of E. Davis and Alfred R. Davis, who report professionally the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Process for Burning Town's Refuse. G. Watson. 12,752. May 24.
 Process of Salt from Brine. E. Paul. 12,768. May 24.
 Process of Gold and Silver from Ores. F. W. Dupré. 12,796. May 24.
 Process for the Manufacture of Lead. J. Golding. 12,832. May 24.
 Process in Candles. H. J. Cook. 12,865. May 25.
 Process of Fuel. A. J. de Monthy. 12,930. May 25.
 Process of Acetic Acid. E. G. Scott. 12,952. May 25.
 Process of Silico-Fluoride of Ammonium. W. Mills. 12,982. May 27.
 Process of Sewage, etc. F. P. Candy. 12,934. May 27.
 Process of Explosive Compounds. S. Rolfe. 13,064. May 27.
 Process of Calcium Carbide and Improvements in its Use. F. H. 13,103. May 27.
 Process of Ketones from Alcohols. J. B. Cohen. 13,214. May 28.
 Process of Method of Using Indigo White for Printing. J. Grossmann. 13,216. May 28.
 Process of Printing Indigo Vat for Producing Effects Similar to Wood Printing Vats. J. Grossmann. 13,216. May 28.
 Process of Alkaline Phosphates. H. Inray. 13,280. May 28.
 Process of Gold, etc. from Solutions. C. P. Shrewsbury and H. R. 13,302. May 29.
 Process of Steel. J. Parry and G. H. Llewellyn. 13,308. May 29.
 Process of Leather Compounds. J. B. Scammell. 13,310. May 29.
 Process for Manufacture of Metal Casks, etc. Goepfinger and Co. and 13,351. May 29.

FRAGMENTS OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, and the rights of publication are reserved. This is the earliest of abstracts of Chemical and allied patents accessible to the

inventions in Glover Towers and the like. P. Jensen, 77, Chancery-London, W.C. (communicated by L. Rohmann and H. Heinech, both of Schwitz, Muskau, Germany). Eng. Pat. 7,127. March 13, 1897.

Process of complicated arrangements for catching it, dust from the gets into, and accumulates in, the Glover tower to such an as to entail stoppages for cleaning, with the attendant loss of expense. Taking into consideration that the dust deposits first meets with solid surfaces and liquid, the bottom portion of the is modified. Over the bottom archid girders or bearers, three acid-proof bricks are laid. Above these a space is left, and set of girders built in, which carry the bricks, &c., with which is filled. In the walls surrounding the empty space just to, openings are provided through which the three tiers of can be removed and cleaned, or replaced with fresh bricks. See two figures.

inventions in, and in the Manufacture of, Pigments, Printing Inks, Paint Mixtures. E. O. S. Gentele and H. R. Gentele, both of 25, Mendörsgatan, Stockholm. Eng. Pat. 7,399. March 22, 1897.

Process of preparation of pigments, printing inks, &c., the colouring is often precipitated on another substance or substratum, such as, gypsum, alumina, &c. As some of the materials used are, this invention provides for the use of powdered chemical or local wood pulp. The precipitation of the pigment may be effected either before or after grinding the pulp. Methods are given for transferring aniline colours, and the like.

Process of Manufacture of a Cleansing Agent. J. C. F. Müller, 4, Sudenkirchhof, Hamburg. Eng. Pat. 1,554. January 20, 1897.

Cleansing agent is intended for cleaning and renovating works. Olein is saponified with a mixture of potash and soda, to form which is stirred into a mixture of mucilage, prepared from moss and linseed, and to which salicylic acid, or any other ting preservative has been added. When it is desired to paintings coated with varnish, &c., more soda and potash are used. An equivalent of ammonia may be substituted for the soda in the soap.

Process of Moss Litter Manure for Obtaining Products therefrom. van de Griendt, Westerkade, Rotterdam. Eng. Pat. 17,883. August 12, 1896. Spent moss litter is treated with steam for some hours in a vessel with constant agitation. The ammonia driven off is caught in water to form sulphate of ammonia. The liquor in the boiler is run

off when all the ammonia has been expelled, and is evaporated, producing an alkaline mixture of nitrogenous and phosphoric salts, useful as a fertilizer. The mass in the boiler, after being put through a centrifugal and dried, can be used as a fuel.

A New or Improved Process of Treating Leather. R. Widemann, 4, Frauenplatz, Munich, Germany. Eng. Pat. 17,420. August 6, 1896.

It is often advantageous to produce leather which is softer in some places than in others, as, for example, in the case of riding leggings. To this end the tanned, but wet skins are cleansed from dirt, the leggings cut out, and greased. The upper part, forming the collar, is clamped between plates to prevent the penetration of the grease. The lower part is then soft-tanned. The stiff portion having been rolled into form, the legging is dried and the blanching iron applied in the usual way. A little leather grease should be applied to the soft portion.

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before Lords Justices Lindley, Lopes, and Rigby.)

IN re MAGNOLIA METAL COMPANY'S TRADE MARKS.

The reserved judgment of the Court, on the appeal of the Magnolia Metal Company from the order of Mr. Justice Kekewich, of the 25th of February, by which he directed the removal, at the instance of the Atlas Company, of certain trade marks from the register, was delivered on Thursday, last week. The appeal was argued on the 12th of May, by Mr. Bousfield, Q.C., and Mr. Wilkinson for the appellants, and Mr. Warrington, Q.C., and Mr. Sebastian for the respondents. In February, 1889, an American company, trading under the name of the Magnolia Anti-friction Metal Company, obtained registration of a trade mark for anti-friction metal bearings, the trade mark consisting of a magnolia flower. In June, the same company registered a second trade mark, consisting of the flower, with the addition of the words "magnolia anti-friction metal," but disclaimed any exclusive right to the use of the words, and in 1894 they registered a third mark in the class for unwrought and partly wrought metals, that mark consisting of the word "magnolia" alone. In 1889 a partnership was constituted in England, under the style of the Magnolia Anti-friction Metal Company of Great Britain, and that firm contracted to take from the American company a fixed quantity of magnolia metal per annum, the American company undertaking not to supply any other person or firm in Great Britain. In 1894 the American Company became the Magnolia Metal Company, to whom the English firm contracted to assign all their rights after a specified quantity of metal had been supplied to them. Disputes afterwards arose between the parties, and in June, 1895, the English firm was dissolved, and the Atlas Metal Company was formed. In June, 1896, the Magnolia Metal Company obtained an injunction restraining the Atlas Company from using their trade marks. Then the Atlas Company applied to strike out the three marks from the register, and Mr. Justice Kekewich decided in their favour. Their Lordships affirmed the order of the Court below expunging the second and third marks but discharged the order as to the first.

THE BRITISH OIL AND GUANO CO., LTD.—This company, whose works are carried on at Fraserburgh, have just purchased the buildings, machinery, &c., at Peterhead, Wick, Montrose, and Shetland, lately belonging to the Highland Fish Oil and Guano Company (Limited), whose affairs are now in the hands of the liquidator.

THE POSITION OF SODIUM NITRATE.—The decrease in visible consumption for the eleven months just ended, as compared with the similar period in 1895-96, equals about 5 per cent. in Europe and over 20 per cent. in the United States. To meet a similar rate of consumption during the following year a reduction of 10 per cent. (or 100,000 tons) in the quota of 23½ millions of quintals seems called for when the now almost certain remaining stock of 150,000 tons in Europe and the United States at end of June is considered.

AN OIL TANK STEAMER.—A contract has been recently secured by Messrs David J. Dunlop and Co., engineers and shipbuilders, Port-Glasgow, for a steel screw-steamer to carry oil in bulk for the Anglo-American Oil Company. The steamer will register 380 tons, and will be 140 feet in length. Triple-expansion engines will be supplied by the builders. This steamer, unlike those previously built for the same company, will not be engaged in the Transatlantic oil-carrying trade, but is for coasting purposes on the American seaboard. Very likely it is, but at the same time the American oil Octopus will have drawn another British firm within its tentacles.

ESTIMATING SILICA IN BLAST-FURNACE SLAG.

THAT silica is not rendered completely insoluble by one evaporation to dryness with hydrochloric acid, has long been recognised. Several evaporations, even, may not dehydrate traces of silicic acid. Moreover, unless the temperature of drying be carefully regulated, some of the silica may re-combine with the bases present, and either form highly insoluble silicates, or else go into solution on subsequent treatment with hydrochloric acid. Boiling concentrated sulphuric acid, on the other hand, is a very efficient agent for the dehydration of silicic acid, Drown's much-used method for silicon in pig iron making use of the fact.

It is the purpose of this article to show that the method of dehydration of silicic acid by sulphuric acid forms a most accurate method for the determination of silica in blast-furnace slags. This arises not only from the fact of the positive and quick production of insoluble silica; but, what is probably more important, from the very complete decomposition of certain constituents of many slags, and the production of a purer silica than can be otherwise obtained.

Those constituents of slags which have most contributed to inaccuracy in the determination of silica, are spinel (magnesium aluminate), and certain complex titanium compounds. On examples of such slags, accurate determinations of silica could not be made either by direct solution in hydrochloric acid or by solution in hydrochloric acid after fusion with sodium carbonate; yet the silica was readily determined by application of the simple process described below.

Pure spinel is thoroughly decomposed by fusion, at a high temperature, with a large excess of sodium carbonate. But spinel, when associated with slag, is only decomposed thus with great difficulty. A slag containing as much as five per cent. of spinel residue by ordinary methods, is nevertheless easily decomposed by boiling concentrated sulphuric acid. Considerable experience with a slag prone to spinel formation has never shown, even under most favourable conditions for spinel formation, more than this amount in the suddenly cooled slag.

When pure spinel is treated with boiling concentrated sulphuric acid it "sets" to a hard mass; the surface of the mass being changed to sulphates of magnesium and aluminium, that, being insoluble in the concentrated acid, prevent further decomposition of the spinel. Upon treatment with water these sulphates dissolve. The operation being repeated, more spinel is decomposed; and so on until complete decomposition results.

When the spinel is associated with slag, however, it is decomposed by one treatment with sulphuric acid, probably because of each small particle of spinel in the finely ground slag being separated from the others. Thus, a very difficultly decomposable slag was found to contain about three and one-half per cent. of spinel; but upon determining silica by the method to be given, the silica was found to be almost pure, and the impurities contained no magnesia.

It might be thought that to treat the impure silica from such slags with hydrofluoric acid and weigh the residues would suffice to accurately estimate the silica. This would be the case were it not for the fact that these spinel residues usually contain other compounds. When these compounds contain, as they usually do, some bodies that are changed to new bodies by treatment with hydrofluoric and sulphuric acids, accurate results can only be obtained when the subsequent ignition causes a reversion to the former conditions.

Thus, suppose an impure silica obtained in the course of analysis and containing, among other impurities, an insoluble compound of titanium, aluminium, magnesium, iron, and potash or soda. This impure silica being treated with hydrofluoric and sulphuric acids, the silica would evaporate as silicon tetrafluoride and the bases change to sulphates. Upon igniting strongly, the aluminium, magnesium, and iron would again revert to the original conditions as oxides; but not so with the alkalis. They would either volatilize at a white heat or else remain and retain most of their sulphur trioxide. It is obvious that, under such circumstances, erroneous results for silica would necessarily occur. Below is given a case from actual experience.

Slag No. 1,944 was found to give by ordinary methods of analysis, as follows:—

Silica and impurities	35.42
Impurities determined by treatment with hydrofluoric and sulphuric acids.....	5.88
Silica.....	29.54

This slag was very exceptional, for although as much as one per cent. of the slag had often been found in the impure silica, never before so much as 5.88 per cent. For the present 29.54 per cent. was considered to be the true proportion of silica in the slag. But in some investigations on spinel it was noticed that the spinel residues were not fully soluble in hot concentrated sulphuric acid. Taking advantage of this fact, the silica was redetermined in this slag, using the new method, with the following result:—

Silica and impurities	31.7
Impurities determined by treatment with hydrofluoric and sulphuric acids.....	0.7
Silica.....	31.0

In other words, the former result had been about one and one per cent. too low—a very large variation from the truth. A investigation on this slag showed that after treatment with hydrochloric and hydrofluoric acids there still remained a residue amounting to 3.81 per cent. of the slag. This residue was not decomposed by sulphuric acid (owing probably to changes produced in igniting to burn off filters); but, as the above analysis shows, readily decomposed by sulphuric acid as it existed in the slag.

The method is as follows: One-half gramme of finely ground slag, placed in a 4-inch casserole, cover with cold water (about three times) and stir to break up lumps. Then pour into the casserole concentrated hydrochloric acid, stirring vigorously to prevent it from settling to the bottom.

As soon as the slag seems dissolved as much as it will, and be has set to a jelly, pour in forty c.c. sulphuric acid (one volume concentrated acid to one volume water), stir well, wash off stirring rod and then cover solution with a funnel. The funnel should have edges and be of such size as to rest upon the sloping sides of the casserole above the solution.

Place the casserole on a wire gauze and boil rapidly until fine sulphur trioxide begin to come from under the edges of the funnel. Cool, dilute somewhat, and clean off the funnel. Add about 10 c.c. of hydrochloric acid and dilute until the casserole is as full as it can conveniently be. Cover with watch glass and boil gently one hour. Filter on pump. Wash five times with hot hydrochloric acid (1:10) and five times with hot water. Burn and weigh. The silica is remarkably pure. On "chilled" slags the impurities are from 0.2 to 0.5%.

This method has been carefully compared with a method consisting of two evaporations to dryness with hydrochloric acid, regulating heat so as not to exceed 120° C., and finally purifying the silica with hydrofluoric acid. The results are generally quite close (the only variations being such cases as cited above, where only the sulphuric acid method could give accurate results), the sulphuric acid method results somewhat higher, due to the more complete dehydration of silicic acid.

In no case has there been found any evidence of calcium sulphate in the silica when the method is carried out as directed.

TABLE OF RESULTS.

Hydrochloric acid evaporation.	Sulphuric acid evaporation.
36.00	36.06
35.52	35.62
34.24	34.74
35.76	35.96

The time necessary is about one and one-half hours, and there is little attention required. "Chilled" slag is best suited, but the method will be found successful on many slowly cooled slags that are insoluble in hydrochloric acid. Unfortunately, the method is not so useful for the determination of silica. Attempts to determine alumina and lime in the filtrate from the silica have failed. Results much too low.

It is worthy of note that the silica obtained is very dense and hard. This is an advantage, in that there is little danger of loss of the silica due to its being thrown out of the crucible by the gases escaping from the filter is charring. With the silica ordinarily obtained by mechanical loss is very apt to occur. The silica obtained by this method is, however, more difficult to decompose by treatment with hydrofluoric acid. It is much less hygroscopic, and weighings are more accurately made.

For as many slags as have been investigated there is claimed above method (1) greater accuracy due to more complete dehydration of silicic acid and thorough decomposition of certain slag constituents and (2) greater rapidity and ease of execution than for other methods of equal accuracy.—*Jour. Am. Chem. Soc.*

ANSWERS TO CORRESPONDENTS.

- A. M. (LILLE).—It all depends upon the nature of the ores employed and the method of manufacture; but it may reasonably be assumed that the average composition is six to seven cwts. per ton of steel.
- S. M.—We are very pleased to see it; it comes at an opportune moment, and defeats the ends of those who would have had it otherwise.
- A. C.—The matter still remains in abeyance, so it can scarcely be said to have been satisfactorily cleared up.
- G. H. S.—It was as annoying as it was simple. It is generally so. Still you do not do better than your best.

EXPORTS OF ALKALI AND BLEACH.

THE following returns, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries for the month of April, 1897, as compared with the same month of 1896:—

ALKALI.				
Port.	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	℥	℥
Russia	15,104	9,079	4,375	2,713
Sweden and Norway	9,242	7,274	2,017	1,356
Germany	10,530	15,344	3,078	4,326
Holland	10,241	9,027	2,009	1,535
France	5,041	5,561	1,804	1,953
Spain and Canaries	22,006	22,250	7,506	7,223
Italy	18,054	18,173	5,499	5,283
United States	242,749	258,963	48,829	65,081
Australasia	23,628	20,684	7,051	6,042
British North America ..	22,363	11,765	5,438	3,667
Other countries	85,082	99,446	24,133	26,670
Total	464,040	477,566	111,739	125,849

BLEACHING POWDER, ETC.				
Port.	1896.	1897.	1896.	1897.
	Cwts.	Cwts.	℥	℥
United States	58,945	57,397	19,912	18,335
Other countries	34,674	30,787	12,062	9,741
Total	93,619	88,184	31,974	28,076

THE KEYSTONE CHEMICAL FILTER.

THE purification of water for manufacturing purposes, by a system of chemical filtration, recently introduced by the Keystone Chemical Company, of Pittsburg, is a subject of unusual interest to the steam using public, as it is claimed that it will make great change in former methods employed for the prevention of scale formation in steam boilers. In discussing methods of purification, some attention should be paid to properties found in water, and the form in which they exist, in order that the investigator may fully appreciate the difference between mechanical and chemical filtration. The suspended impurities found in water, whether they are of an organic or inorganic origin, are speedily and effectually removed by passing the water slowly over a series of filter beds, consisting of charcoal, sand, gravel, etc., placed in a closed receptacle provided for the purpose. The fine particles of matter attach themselves to the material of which the beds are composed, and are removed at regular intervals by washing.

The water drawn from such a device is clear and sparkling, and to the untrained eye indicates that all the deleterious properties which made it objectionable for boiler use have been removed. A careful analysis, however, reveals the presence of another source of trouble far more objectionable and difficult to overcome than the tiny particles of earthly matter and animalcule to which we have above referred.

This class of solids which is found in solution in immense quantities in almost all natural waters, embrace the calcium, magnesium and aluminum salts, which are classified respectively as carbonates, sulphates and nitrates, dependent on the locality in which their source originates. These impurities largely constitute the scale-forming properties found in water, and when it is placed in a boiler and sufficient heat applied to raise the temperature to 300 degrees F., a decomposition of the mineral impurities takes place, and the lime, magnesia and alumina salts, thus released, sweep over the heated surface of the boiler, forming a coating of scale, the result of which is so well known to every manufacturer who uses steam as a motive power for his factory as to require no further description. In addition to the foregoing properties, the analyst also finds, in the course of his examination, numerous other solids in the form of sodium salts, iron salts, etc., all of which must be taken into consideration in the scientific treatment of water for boiler use.

The device which accomplishes the chemical filtration of the water is constructed in the following manner:—The body of the filter is constructed of wrought iron pipe, ranging from six inches to 24 inches in diameter, and from five feet to 12 feet in length, dependent entirely on the volume of water to be filtered and the amount and nature of the scale-forming properties to be removed. The ends of the pipe are expanded into suitable flanges of corresponding diameters, to which the heads are securely bolted and sealed. The heads are constructed with baffle plates, to prevent the

deposits from being flushed backwards or forwards into the feed lines, while the accumulations are being removed from the chemical plates, through the settling chamber. The body of the machine is filled with a series of circular plates, of peculiar chemical composition, possessing not only the properties necessary for the separation of the calcium, magnesium, and aluminum salts from the water in its passage over them, but capable of holding these accumulations on the plates after separation takes place, until relieved by the introduction of a jet of cold water or compressed air, introduced into the filter at regular intervals. This jet is introduced in the opposite direction to which the feed water enters, thus breaking the contact, and a fine granular deposit is washed out to the sewer instead of being allowed to enter the boilers and bake fast into scale.

The filter is located in the feed line to the boilers, at such a point as will insure a temperature of 150° F., although 180 to 200° is preferable, as the chemical reaction takes place more quickly at higher temperatures. Where an open heater is used it is desirable to place the filter between the heater and the pumps in order to prevent the pipes and pump from becoming clogged with lime and magnesia, which is an item of considerable importance, as the damage due to the removal of the pipes, and the breakage of the pumps will more than pay the rental of the filter.

The chemical composition of the plates is varied, according to the conditions under which they are to operate, so that it matters not whether the water contains basic acid, or sodium salts, the device is able to perform the necessary functions in eliminating these impurities from the water. The following analysis of water supplies will serve to illustrate the wide scope of work which it is able to perform.

Salem Iron Company.		Grains per U.S. Gallon.
Lime carbonate	1'11	
Magnesia carbonate	4'89	
Lime sulphate	15'23	
Sodium chloride	1'46	
Iron oxide	'96	
Alkaline salts ..	3'64	
Volatile and organic matter	6'51	
Total solids	33'85	

Lima Electric Light and Power Company.		Grains per U.S. Gallon.
Lime carbonate	2'24	
Magnesia carbonate	2'68	
Lime sulphate	6'12	
Lime chloride	10'54	
Sodium chloride	13'10	
Iron carbonate	'55	
Volatile and organic matter	12'00	
Total solids	47'23	

Texas and Pacific Railway.		Grains per U.S. Gallon.
Lime sulphate	6'34	
Magnesia sulphate	4'95	
Sodium chloride	7'50	
Sodium sulphate	3'78	
Free acid	1'80	
Iron hydrate	2'00	
Volatile and organic matter	1'20	
Total	27'57	

The company, after due consideration of the value of the device, decided to place it in the different manufacturing plants under the most favourable conditions—a rental basis—whereby the owner of the works is guaranteed absolutely clean boilers without any investment in apparatus, as the machines are kept in repair by the owners, and all plates and parts thereof which are subject to wear, are inspected and renewed at regular intervals without delay or expense to the operator of the plant.

The company has recently placed filters of the following sizes: Homestead Steel Works, 1,000 horse-power; Lima Electric Light and Power Company, 1,000 horse-power; Salem Iron Company, 2,000 horse-power; The King, Gilbert and Warner Company, 1,800 horse-power; B. F. Goodrich Company, 1,000 horse-power; Buckeye Portland Cement Company, 300 horse-power. In addition to these, they have a number of machines in use on the Pittsburg, Ft. Wayne, and Chicago railroad, the Texas and Pacific railway, and the Pittsburg and Western railway.

A FORTUNE FROM GUANO.—M. Auguste Dreyfus, whose death is announced from Paris in his 70th year, derived a large fortune from the guano deposits in the Chincha Islands, which he was the first to exploit, but long disputes with the Peruvian Government caused him much loss and anxiety, and the case is now under arbitration by the Swiss Republic.

THE U.S.A. TARIFF BILL.

THE following is an abstract of the new Tariff Bill as reported to the Senate by the Finance Committee, and contains the amendments made by the Senate in the House Bill:—

CHEMICALS, AND PIGMENTS.

Acids: Acetic or pyroligneous acid shall be charged 3 cents per lb.; not exceeding the specific gravity of $1\frac{4}{10}$, $\frac{3}{4}$ cent per lb.; exceeding the specific gravity of $1\frac{4}{10}$, 2 cents per lb.; boric acid, 5 cents per lb.; chromic acid, 4 cents per lb.; citric acid, 7 cents per lb.; sulphuric acid or oil of vitriol not specially provided for in this Act, $\frac{1}{4}$ cent per lb.; tannic acid or tannin, 50 cents per lb.; tartaric acid, 6 cents per lb.; all other acids not specially provided for in this Act, 25% *ad valorem*.

Alumina, hydrate of, or refined bauxite, $\frac{9}{10}$ cent per lb.; alum, alum cake, patent alum, sulphate of alumina, and aluminous cake, and alum in crystals or ground, $\frac{1}{2}$ cent per lb.

Ammonia, carbonate of, $1\frac{1}{2}$ cents per lb.; muriate of, or sal ammoniac, $\frac{3}{4}$ cent per lb.; sulphate of $\frac{9}{10}$ cent per lb.

Blue Vitriol, or sulphate of copper, $\frac{1}{2}$ cent per lb.

Bone Char, suitable for use in decolorizing sugars, 20% *ad valorem*.

Borax, 5 cents per lb.; borates of lime or soda, or other borate material not otherwise provided for, containing more than 36% of anhydrous boric acid, 4 cents per lb.; borates of lime or soda, or other borate material not otherwise provided for, containing not more than 36% of anhydrous boric acid, 3 cents per lb.

Cobalt Oxide, 25 cents per lb.

Extracts and decoctions of logwood and other dyewoods and extracts of barks such as are commonly used for dyeing or tanning, not specially provided for in this Act, $\frac{3}{4}$ cent per lb.; extracts of quebracho and of hemlock bark, $\frac{1}{2}$ cent per lb.; extracts of sumac, and of woods other than dyewoods, not specially provided for in this Act, $\frac{3}{4}$ cent per lb.

Gelatin, glue, isinglass or fish glue, and prepared fish bladders or fish sounds, valued at not above 7 cents per lb., $1\frac{1}{2}$ cents per lb.; valued at above 7 cents per lb. and not above 35 cents per lb., 25% *ad valorem*; valued above 35 cents per lb., 15 cents per lb., and 20% *ad valorem*.

Glycerine, crude, not purified, 1 cent per lb.; refined, 3 cents per lb.

Indigo Extracts, or pastes of, $\frac{1}{4}$ cent per lb.; carmined, 10 cents per lb.

Iodine, resublimed, 20 cents per lb.

Magnesia, carbonate of medicinal, 3 cents per lb.; calcined, medicinal, 7 cents per lb.; sulphate of, or Epsom salts, $\frac{1}{3}$ cent per lb.

Baryta, sulphate of, or barytes, including barytes earth, unmanufactured, 75 cents per ton; manufactured, 5 dollars and 25 cents per ton.

Blues, such as Berlin, Prussian, Chinese, and all others, containing ferrocyanide of iron, in pulp, dry or ground in, or mixed with oil or water, 6 cents per lb.

Blanc-fixe, or artificial sulphate of barytes, and satin white, or artificial sulphate of lime, $\frac{1}{2}$ cent per lb.

Blacks made from bone, ivory, or vegetable, by whatever name known, including bone black and lamp-black, dry or ground in oil or water, 25 cents % *ad valorem*.

Chrome yellow, chrome green, and all other chromium colours, in the manufacture of which lead and bichromate of potash or soda are used, dry or ground in or mixed with oil, $4\frac{1}{2}$ cents per lb.; in pulp or mixed with water, $4\frac{1}{2}$ cents per lb. on the material contained therein when dry.

Ochre and ochery earths, sienna and sienna earths, umber and umber earths, not specially provided for in this Act, dry, $\frac{1}{4}$ cent per lb.; ground in oil or water, $1\frac{1}{2}$ cents per lb.

Orange mineral, 3 cents per lb.

White and Red Leads, $2\frac{1}{4}$ cents per lb.

Zinc Oxide, $1\frac{1}{4}$ cents per lb.

Lead, acetate of, white, $2\frac{1}{4}$ cents per lb.; brown, grey, or yellow, $1\frac{1}{4}$ cents per lb.; nitrate of, $1\frac{1}{2}$ cents per lb.; litharge, $2\frac{1}{2}$ cents per lb.

Phosphorus, 10 cents per lb.

Potash, bichromate and chromate of, 3 cents per lb.

Caustic or hydrate of, refined, in sticks, or rolls, 1 cent per lb.; chlorate of, 2 cents per lb.

Hydriodate, iodide, and iodate of, 25 cents per lb.

Nitrate of, or saltpetre, refined, $\frac{1}{2}$ cent per lb.

Prussiate of, red, 8 cents per lb.; yellow, 4 cents per lb.

Soda: Bicarbonate of soda, or supercarbonate of soda, or saleratus, and other alkalies containing 50% or more of bicarbonate of soda, $\frac{3}{4}$ cent per lb.

Bichromate and chromate of soda, 2 cents per lb.

Crystal carbonate of soda, or concentrated soda crystals, or monohydrate, or sesquicarbonate of soda, $\frac{2}{10}$ cent per lb.; chlorate of soda, 2 cents per lb.

Hydrate of, or caustic soda, $\frac{3}{4}$ cent per lb.; nitrite of soda, $2\frac{1}{2}$ cents per lb.

Sul soda, or soda crystals, not concentrated, $\frac{2}{10}$ cent per lb.

Soda ash, $\frac{3}{8}$ cent per lb.

Silicate of soda, or other alkaline silicate, $\frac{1}{2}$ cent per lb.

Sulphate of soda, or salt cake, or nitre cake, 1 dollar and 25 cents per ton.

Sulphur, refined or sublimed, or flowers of 8 dollars per ton.

Sumac, ground, $\frac{2}{10}$ cent per lb.

FREE LIST.

That on and after the 1st day of July, 1897, unless otherwise specially provided for in this Act, the following articles when imported shall be exempt from duty.

Acids: Arsenic or arsenious, benzoic, carbolic, fluoric, hydrochloric or muriatic, nitric, oxalic, phosphoric, picric or nitro-picric, prussic, silicic, salicylic and valericianic.

Aniline salts.

Antimony ore, crude sulphide of.

Apatite.

Argols, or crude tartars, and lees crystals.

Arsenic and sulphide of, or orpiment.

Ashes, wood and lye of, and beet-root ashes.

Baryta, carbonate of, or witherite.

Bauxite or beuzite, crude, not refined or otherwise advanced condition.

Blood, dried.

Bones, crude, or not burned, calcined, ground, steamed, or otherwise manufactured, and bone dust or animal carbon, and bone ash only for fertilising purposes.

Bromine.

Charcoal.

Chromate of iron or chromic ore.

Coal tar, crude, pitch of coal tar, and products of coal tar, known as creosote oil, benzol, toluol, naphthaline, xylol, phenol, cresol.

Cryolite, or kryolith.

Cudbear.

Cutch.

Divi-divi.

Dragon's blood.

Farina.

Gambier.

Grease and oils, such as are commonly used in soapmaking, wire drawing, or for stuffing and dressing leather, and which are only for such uses, and not specially provided for by name in this Act.

Guano, manures, and all substances used only for manure.

Indigo, whether natural or artificially prepared.

Iodine, crude.

Kieserite.

Kainite.

Lime, chloride of, or bleaching powder (doubtful).

Litmus, prepared or not prepared.

Magnesite, crude or calcined, not purified.

Magnesium, not made up into articles.

Manganese, oxide or ore of.

Paraffin.

Phosphates, crude (or native).

Plaster rock, or gypsum, and terra alba, crude and not calcined, or otherwise advanced from the natural state.

Plumbago.

Soda, nitrate of, or cubic nitrate.

Sodium.

Strontia, oxide of, and protoxide of strontium, and strontianite mineral carbonate of strontia.

Sulphur, lac or precipitated, and sulphur or brimstone, crude bulk, sulphur ore as pyrites, or sulphuret of iron in its natural state, containing in excess of 25 per centum of sulphur, and sulphur otherwise provided for.

Sulphuric acid which at the temperature of 60° F. does not exceed the specific gravity of one and three hundred and eighty thousand for use in manufacturing superphosphate of lime or artificial manure of any kind, or for any agricultural purposes: Provided, that upon sulphuric acids imported from any country, whether independent or dependent, which imposes a duty upon sulphuric acid imported from such country from the United States, there shall be levied and collected a duty of $\frac{1}{4}$ of 1 cent. per lb.

PERSONAL.—Mr. Walter Wilde, of Radcliffe, Lancashire, is authorised agent for the North of England for the "Viscose" Company whose product is used as a sizing agent by paper makers.

NITRATE STATISTICS.—The Permanent Nitrate Committee's preliminary statistical circular for June shows:—Total exports to Europe, 1,066,000 quintals; loading for Europe, June 1, 1,049,000 quintals; imports Europe, May, 89,160 tons; deliveries Europe, May, 78 tons; visible supply Europe, June 1, stocks and afloat, 309,860 tons.

LIQUID FUEL FOR LOCOMOTIVES.

IN the course of his evidence given before the Petroleum Commission, Mr. A. M. Bell gave the following particulars concerning the use of liquid fuel on the Great Eastern Railway:—A necessity for burning the waste tar made at the Oil Gasworks, at Stratford, arose in 1886, and an apparatus was applied to a stationary boiler of locomotive type. From the working of that it became apparent that oil fuel might be applied with advantage to locomotives, and Mr. Holden (their Chief Engineer) accordingly fitted an experimental engine. Mr. Holden came to the conclusion that its adoption would be successful, provided the apparatus used did not prevent the use of coal when desired, the state of the oil fuel supply hardly warranting the conversion of engines. Mr. Bell had discovered a means of adapting liquid fuel to locomotives. On the locomotives, two injectors or burners were placed to spray the oil fuel into the fire-box immediately above the ordinary fire-level. These burners were of special design, with suitable connections for steam and oil fuel. The spraying medium was steam, and air for combustion, and was introduced by the action of a small steam-blower, arranged near the nozzle of the burner. At present there were thirty-seven Great Eastern engines fitted for using liquid fuel—viz., sixteen express engines in service on the main lines, one goods engine, and twenty tank engines chiefly running in the suburban districts. The express and goods engines had long cylindrical tanks laid horizontally along the tenders on either side to carry the fuel, whilst the tank engines had erect angular tanks placed in the bunkers. The express engines carried 650 gallons of oil, and the tank engines 200 gallons. Good results had been obtained both with oil fuel alone and with oil and coal combined. Various oils were used according to the market price. Astatki or petroleum residue had been largely employed. It had a specific gravity of .906 and an ignition temperature of 336 degrees Fahrenheit, but at the present time green oil, a distillate of gas-tar, was being used. It had a specific gravity of 1.122, and a flash-point of 220 degrees Fahrenheit. Upon arriving at Stratford the oil fuel in travelling tanks was run by gravity into an underground storage, composed of rectangular tanks, having a total capacity of about 50,000 gallons. From these it was pumped, as required, to a series of high-level cylindrical tanks of 7,000 gallons capacity each, for supply to the engines. The oil passed through 4in. mains to two standpipes or filling cranes alongside the rails, and the tanks were filled precisely the same as with water. During the coal strike of 1893 the Great Eastern Railway Company purchased and used about 200 tons of burning oil. No special precautionary arrangements were made, and no trouble experienced. All manholes of tanks were protected by a fine gauze sieve, which, whilst cleansing the oil of solid impurities, acted as an effectual safeguard from fire. The experience was very satisfactory, and if they could get the oil cheap enough they would use it by preference. On one occasion, whilst filling a fuel tank at a stationary boiler, the man pumped the oil over the tank, and then carelessly and against instructions took a naked wick lamp to see how much he had spilt. When removing his filling pipe he upset the lamp on the oily surface of the tank, which ignited and burnt his arms. The fire died out as soon as the oil had burnt off. The tank lid had been shut. That would not have occurred with astatki or green oil. No cases of collision or anything damaging the oil tanks had occurred, but engines and tenders had at times left the rails. He did not find any tendency to danger from the movement of the oil in the tanks on the engine either in the way of straining the tanks or of generating a dangerous vapour as the oil got lower in the tank. In the summer the Great Eastern Railway Company used about 30,000 gallons a week, but rather less in the winter, when fewer trains were run. The London and North-Western and the Lancashire and Yorkshire Railway Companies also used oil fuel to a limited extent. It was also used in South America, India and California. If the oil could be obtained at a price which would compete with coal, the Great Eastern Railway Company would have no hesitation in fitting a large number of engines. At the present time the cost to the company was 20% higher than would make it profitable to substitute oil for coal fuel. The flash-point of the oil used during the coal strike would be above 80°. Their principal oil store was at Stratford, but there were small stores at Norwich and Ipswich. If the oil could be got cheap enough, he was confident it would take the place of coal. The same engines could be used, and the only additional cost would be £57. or £60 each for fitting on the apparatus. The reason why other railway companies had not taken to oil fuel to a larger extent was that being near the coalfields they got their coal cheaper. The Great Eastern Railway was close to the oil depot, and therefore the company could obtain it more readily. One pound of oil would take the place of 21lb. of coal. Coal cost the company from 14s. to 15s. per ton, and the oil fuel from 24s. to 26s. per ton. An express engine burning coal consumed 34lb. per train mile, and the same engine burning oil fuel would require only 16lb. per mile.

Reports of Companies.

EUROPEAN PETROLEUM COMPANY.

THE Marquis of Granby (chairman of directors) presided last week at the first ordinary general meeting of the European Petroleum Company.

The Chairman, in the course of a lengthy speech, said that, judging from the proxies received in support of the present proposals, he could not doubt that their report was regarded as satisfactory by the shareholders generally. Their property might fairly be divided into five heads—business in Russia, at Baku, Batoum, and Grosney; the business in Roumania; the business in Galicia; their ships; and the refinery at Thameshaven. The whole of these are now under their own control, and since the report was issued telegrams had been received from Baku stating that the formalities spoken of in the report had been completed. The arrangements in connection with the ships have been agreed to by the vendors and by other parties interested, which would enable the company to work its fleet to advantage. The Galician, Roumanian, and Grosney businesses were already in their hands, and Colonel English would tell them that he had no reason to doubt that the refinery being erected at Thameshaven was in a fair way to be completed. Arrangements had been made with the vendors whereby, instead of taking over the storage installations at Bremen and Hamburg, they acquired a considerably larger freehold storage at Batoum, which would be of great value to the company's business at Baku. They had felt that the whole of the properties should be in their hands, but in justice to the vendors he must say that this could not be arranged until the company took upon themselves certain obligations the vendors were under terms to complete. The net result of the proposition indicated in the report had been that they had taken over the debts on the ships and the payment of the final instalment upon the property at Baku, amounting in the one case to £345,000., and in the other to £54,000. odd, and had made similar adjustments—though in a far smaller degree—in connection with the Thameshaven properties and plant. An arrangement had also been arrived at under which the vendors would take £200,000 of their purchase money in deferred stock which will only be entitled to a dividend after the preference shareholders of the company had been paid their full dividend and the ordinary shareholders have received 8% per annum. This proposition had practically relieved all their difficulties. During the past six months the net profits of the work at Baku had been about £2,200., and even better results had since been obtained, the production, according to a telegram lately received, being very largely increased. This profit was drawn from ten or twelve wells, and when he said they might have 300 additional wells they would appreciate the value of the property and the possible profit. At Grosney they were about to develop their property, but in Roumania and in Galicia they thought it wise to stay their hands just yet. As regarded their ships, their object in owning the fleet was to be prepared for the time when they would carry their own oil, and it would be a distinct advantage to them to be able to do this. Of their thirteen ships eleven were now earning a good revenue. To pay the interest on the money due in connection with the ships, and to pay the dividend on the preference and ordinary shares would require £59,500 per annum, but the profits from Baku would practically discharge this liability, leaving the revenue to be derived from the other properties. The figures for Baku were based on daily returns of production and cost, and net result. The report was adopted. The consulting expert to the company reported favourably on the outlook in Russia, and stated that the product in Roumania was of excellent quality, and they had ample scope for a large development, while in Galicia it was right that the work should proceed cautiously, for it was possible to spend a great deal of money in an unremunerative manner there.

KENT COALFIELDS SYNDICATE (LIMITED).

The first annual general meeting of the shareholders was held last week at Cannon-street Hotel, E.C. Mr. G. F. Fry, who presided, hoped they would concur with the directors in the feeling of satisfaction entertained by them with regard to the financial position of the syndicate. Their total indebtedness did not exceed £51., whereas, after providing for the amount payable to the contractors for the sinking and equipment of the colliery, there remained nearly £10,000. in cash, and 7,000 preference shares as yet unissued, which could be sold that day for about £40,000. A great deal of interest had been excited in scientific and commercial circles in connection with the proposed opening out of the Kentish coalfields. As far back as 1890 they all knew that the existence of such a coalfield had been demonstrated by the enterprise of Sir Edward Watkin and Mr. F. Brady, but few people appreciated to any extent the commercial importance of the discovery. They claimed, as regarded their Dover coalfield, first, that they were on equal terms as to the cost of winning and working with recognised coal districts; secondly, that the quality of their coal was good; and,

thirdly, that being so much nearer their markets than other collieries, they would be able to make larger profits. Among other things, shareholders had written for information as to whether the seams were capable of profitable working at the depth at which they were found, and also whether it was correct that the seams were too thin for remunerative working. He could only reply that, as far as he was able to discover, a large proportion of the 200,000,000 tons of coal raised annually in the United Kingdom was worked from seams thinner than those at Dover, while many collieries were working at a much greater depth than that at which the syndicate's coal was to be found. This syndicate has secured extensive mineral rights so far as possible in contiguity to the pits now being sunk, and a total area sufficient for the establishment of many collieries. The board, however, being satisfied with its certainties, preferred to leave to other friendly adventurers all operations which involved elements of risk or speculation, and they had, therefore, arranged with the Kent Coal Exploration Company to put down bore holes without any sort of cost or liability to this syndicate, on their outlying and unproved areas, on the terms that if the coal measures were proved the profits were to be divided equally. Advantageous arrangements had also been entered into with other responsible parties. He concluded by moving the adoption of the report, which was seconded by Mr. Brady, and agreed to.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Washington, gives the following returns of the exports of petroleum and petroleum products for March, 1897. The total shipments were 77,572,961 gallons, compared with 64,269,114 gallons in 1896. The total for the nine months ending March 31st, 1897, was 713,155,218 gallons, against 650,676,974 gallons during the same period in 1896. The details of the shipments are as follow:—

CRUDE PETROLEUM.		Gallons.
Total, Mar., 1897	.....	12,341,940
" " 1896	.....	8,510,998
NAPHTHAS.		
Total, Mar., 1897	.....	1,129,322
" " 1896	.....	1,007,522
ILLUMINATING.		
Total, Mar., 1897	.....	59,824,074
" " 1896	.....	50,686,558
LUBRICATING AND PARAFFIN.		
Total, Mar., 1897	.....	4,138,395
" " 1896	.....	4,028,618
RESIDUUM.		
Total, Mar., 1897	.....	139,230
" " 1896	.....	26,418

OIL TRADE DEVELOPMENTS AT MANCHESTER.

AN important business, entirely new to Manchester, but common to nearly all other large seaports, will shortly spring up on the banks of the Ship Canal below Mode Wheel locks—namely, the importation and storage of cargoes of oil in bulk. Since the opening of the canal, consignments of mineral lubricating oil, petroleum, etc., have been imported to the Manchester docks in steadily increasing volume, but owing to the absence of accommodation for dealing with oil carried in tank-steamers, all such consignments have arrived in barrels. Notwithstanding this drawback, last year's shipment of oil to Manchester, by way of the canal, amounted to 17,449 tons, as compared with 8,155 tons in 1895, and there is no doubt that if storage tanks had been available, the importation would have been much larger. Reference has already been made in these columns to the two large oil tanks which have been erected by the Manchester Corporation Gas Committee, on a piece of ground adjoining the foreign animals wharf at Old Trafford. They will be used exclusively by the Committee for their own purposes, and it is expected that about 20,000 tons of oil will pass through them every year. This will, of course, be imported in tank steamers from America or Russia. A development of even greater commercial importance is, however, the establishment of similar depôts for oil imported for general use. Two large tanks for the Liverpool Oil Storage Company are now in course of erection on the Old Trafford side of the canal, and it is said that this Company is making preparations for dealing with a trade of 60,000 tons per annum. It is stated, also, that several acres of land on the opposite side of the canal have been purchased by a Russian oil syndicate, which intends to construct similar tanks, and expects to do an equally large business. A local firm has already established an oil manufactory near Mode Wheel locks, and the Canal Company is to construct suitable wharves on both sides of the waterway.

Trade Notes.

NEW QUICKSILVER MINE.—It is reported from Agram, Croatia that in a mine at Trstjnj quicksilver has been found which can profitably be worked. It is added that a London company has already purchased the mine.

STEEL BARRELS FOR VITRIOL.—The Iron and Steel Plant Company of 3, Crown Court, Old Broad-street, E.C., advise use that the railway companies will now accept their 10-gallon steel barrels for the carriage of sulphuric acid at the same rate as is in vogue for glass carboys. The barrels have been thoroughly tested by the chemists of the principal railways, and have been very favourably reported upon.

DECISION IN THE AUSTRALIAN CYANIDE PATENTS.—The Cassel Gold Extracting Company, (Limited) have received the following decision from their New Zealand branch, dated Auckland, 3rd June:—"Supreme Court decision in our favour. Amendment has been allowed." I also learn that Mr. Charles J. Ellis, F.I.C., for many years chief chemist to the Cassel Gold Extracting Company (Limited), has been appointed technical manager to that company, in room of Mr. Alfred James retired.

A "TRUTH" STORY.—In connection with the history of the Imperial Institute, the following story is of considerable interest, says *Truth*. The time when Sir Somers Vane was organising the Commonwealth Intelligence Department, and endeavouring to compile a catalogue of the collections, framed with a special eye to commercial utility, Frederick Abel suddenly conceived the idea that it was desirable to place this work in other hands, and to appoint a special technical officer to take charge of the collections. A proposal to this effect was made to the Council, with the result that it was referred to the Finance Committee to inquire whether the Institute could afford such an officer. At the meeting of the Finance Committee where the question was debated one of the most prominent members of the governing body announced that if there was any difficulty about finding the salary, he would give it himself. On this the officer in question was appointed. He held office for two and three-quarter years, when he was retired with a gratuity of £150., leaving the collections in precisely the same condition in which he found them. It is quite evident that the Institute was not at the time in a position to afford the salary of this officer, and that his appointment was a gratuitous and useless waste of money. What about the promise of the eminent member of the governing body to find the salary if the Institute could not do it?

THOSE "TRUSTS" AGAIN.—The following extract is from a paper by Mr. James E. Wright, published in *Donahoe's Magazine*, Boston:—"More than 300 trusts in the United States control most of the necessities and luxuries of life, without including the railways and banks. These latter control the means of transportation and exchange of the Sugar Trust, whose officers were before the Lexow Committee something over a month ago, Judge Barrett stated judicially some years ago:—"It can close every refinery at will, close some and open others to limit the purchases of raw material (thus jeopardising, and, in a considerable degree, controlling its production), artificially limit the production of refined sugar, enhance the price to enrich themselves and their associates at the public expense, and depress the price of sugar necessary to crush out and impoverish a foolhardy rival." The trusts which have been made by Congress and by many of the States to deal with them have proven utterly futile. The trusts are as elusive as Proteus. They change their names, headquarters, and forms of management, avoid the tooth of the law, and when their officers testify under oath in public investigations their memories are peculiarly defective. But the thing itself—the monopoly—lives on, and waxes more powerful day by day. It dominates State Legislatures, and has representatives in Congress."

AN OIL TRAMWAY MOTOR.—At a recent meeting of the Glasgow Corporation, Mr. Gray produced a letter with reference to a new motor for tramway work, which he desired the Tramway Committee to consider. The car is known as the Shain oil motor, and in applying to tramway work for existing tram lines, no alteration to the body of the car would be necessary, and no subsidiary charging stations would be wanted, as each car would carry its own oil supply for 18 or 20 hours continuous working. The car would be self-starting, as one man would perform all the operations of starting, stopping, &c. The average cost per car mile working with a total weight of five tons, including moderate gradients, and at an average speed of 8 or 9 miles an hour, estimated at a halfpenny per mile. The proprietors are prepared to supply the motor, the controlling mechanism, wheels, axle boxes, &c. frame all complete for £500, and they undertake should the experiment not prove successful to take back the apparatus and refund the £500. On the other hand, should the Council be satisfied with the result of the experiment and determine to adopt the same for a sufficient number of cars, they would be prepared to supply the motor, the controlling mechanism, wheels, axle boxes, and frame for each single car for the

The motor, it was further stated, was self-balanced, and could not communicate any vibration to the car, and the thing practically perfect, there was an absence of the smell so conspicuous with other oil motors.

Market Reports.

R AND AMMONIA PRODUCTS.

Steady, at 1s. 9d. for 90's and 1s. 11d. for 50/90's. The tar products is quiet, and prices disposed to weaken. Acid (60%) and crystals are still quoted 2s. 3d. and rely. Naphthas are nominally unchanged. Anthracene dull and unaltered, while pitch is depressed at 18s to Coast.

Ammonia keeps fairly steady. The demand is naturally to the Whit-week holidays upsetting the usual course of sales, however, are practically unaltered, with Beckton at London outside makes, £7. 8s. 9d. to £7. 10s.; Liverpool, £7. 13s. 9d.; Hull, £7. 10s.; and Leith, £7. 8s. 9d. to rate of soda lower.

ILLANEOUS CHEMICAL MARKET.

Continued good inquiry for all the products of the alkali for export, and prices all round are steadily maintaining powder is moving in larger quantity, and prices are a ton for makers' works, and £6. 12s. 6d. to £6. 15s. soda for prompt and early delivery is without change; in 10-ton lots: 77%, £9. per ton; 74%, £8. to £8. 2s. 6d.; 6d.; 60%, £6. 2s. 6d. to £6. 5s. per ton. Soda ash 99% offers at £12. 15s. per ton. Soda ash is nominal, at 1d. to 1½d. per deg. f.o.b. for finest qualities. Ammonia alkali, 58%, unchanged at 1s. 10d. (bags) f.o.b. makers' works. Soda crystals, 45s. to (bags) f.o.b. Bicarbonate is steady at £6. 10s. to £6. 12s. 6d. according to package. Saltcake in a better position at 19s. in bulk. Sulphites and hyposulphite of soda are quiet. Copper there is much less enquiry, and price ranges 16. 5s. f.o.b. Potash, caustic and carbonate, are firm there is fairly good demand. Brown acetate of iron and with a tendency to higher price for foreign, £5. 2s. 6d. to £5. 7s. 6d. per ton c.i.f. lime in demand at £7. 10s. to £7. 15s. c.i.f. Acetic acid, and lead are quiet and prices without movement. Nitrate of soda, 7s. 6d. per cwt. for spot delivery. Ammonia salts quiet and without improvement in values. White soda ash is moving more freely at £22. 5s. to £22. 10s. according to package. Prussiate of potash remains at 5½d. per lb. Cyanide 11½d. to 1s. per lb. For sulphocyanides there is little demand, and prices are low. In wood naphtha of 3s. 3d., with still advancing tendency. Tar is in less demand, and prices are weaker. Tartaric acid is firmer. Oxalic acid quiet at 3½d. to 3¾d. Quiet generally in the demand for all chemicals required in the

THE METAL MARKETS

WEDNESDAY.—Pig iron steady. Scotch warrants closed at 48s. 3d.; cash and hematite, 47s. 8d.; copper firm. D.B.'s and G.M.B.'s, closed at £48. 17s. 6d. to £49. 3s. 9d. to £49. 8s. 9d. three months. Tin closed at £60. 16s. 3d. to £61. 16s. 3d. cash, and to £62. 6s. 3d. three months; Australian, £62. 5s. 6d.; English, £65. Lead: Spanish, £11. 18s. 9d.; English, Silesian spelter, ordinary, £17. 2s. 6d. Nickel, 1s. 10d. to £30. 10s. Quicksilver: First hands, £7. 10s. to £7. 15s. Copper shares steady: Cape, 2½ to 2¾; Libiola, 2½ to 2¾; Mason and Barry, 2½ to 2¾; Tinto, 26½ to 27; Tharsis, 5¾ to 6.

WEDNESDAY.—There is little change to report this trade position of the West of Scotland. The practical engineering trade difficulty has so far had little effect, and more work will be forthcoming for shipbuilders and as a result of this somewhat improved labour conditions the past month Clyde shipbuilders launched new vessels of 35,226 tons and booked contracts to the amount of 60,000 tons. During the week a few orders were placed, but the not of great importance.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—The market is quiet owing to the holidays. Palm oil continues to move slowly at moderate values. Olive is steady, with Candia still offering at £30. Linseed shows no appreciable change, and last quotations may be taken as representing nearest values. Cottonseed is firmer, though prices remain the same as last quoted. Castor oil is steady, with a satisfactory demand on spot for good seconds, Calcutta and first pressure French. Tallow is moving slowly, the market being quiet. Resin firm and prices stationary. Spirits of turpentine are moving pretty well at last quotation. Petroleum dull; American 5¼d. to 7d., and Russian refined 5¼d. per gallon.

CAKES.—There is nothing fresh to report, linseed and cottonseed and Egyptian remaining as quoted last week.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Holidays here extend only to Tuesday, yet the market prices have held well together, linseed oil being quoted firm at a slight advance beyond prices a week ago. The stocks of seed in Hull at the close of last month as against the previous month were:—Linseed, 30,175 quarters, against 17,605 quarters in April; rapeseed, 990 quarters, against 2,000 quarters; cottonseed, 1,549 tons, against 765 tons. The imports for the month were: 83,795 quarters, against 33,905 quarters in April; rapeseed, 8,334 quarters, against 988 quarters; cottonseed, 12,650 tons, against 19,262 tons. Linseed oil is very firm, at 13s. 9d. paid spot, which was also accepted for June-August, last four months, 14s. per cwt., naked. Boiled and refined, £1. to £1. 10s. per ton extra. Refined cotton oil dull. Spot, naked, 12s. 9d. per cwt. naked; forward June-Aug., 12s. 10½d.; November-April, 13s. 4½d. Crude, spot, 11s. 6d.; November-April, 12s., accepted with further buyers. Filtered refined, £1. extra; casks £1., and ordinary barrels £1. 10s. per ton extra. Oleines unchanged, from £16. to £18. per ton. Spirits of turpentine, 21s. 6d. to 21s. 9d. Castor oil: A fair demand for the article pressed here, prices unchanged. Olive oil, from £30. to £32. per ton. Cod oils, £16. to £18. per ton. Cholestine (extract of wool fat), £28. per ton. Italian olive soaps, from £16. to £18. per ton. Soft soap, £12. per ton.

CAKES.—In spite of the fine open weather, linseed cakes are firmly held and quoted 95% pure, £6. 5s. to £6. 7s. 6d.; oilcakes, £5. 7s. 6d.; Russians, £6. 2s. 6d. per ton; Americans, £5. 5s. to £5. 7s. 6d. Cotton cakes are very quiet: best makes £3. 11s. 3d. to £3. 12s. 6d.; seconds, £3. 8s. 9d. to £3. 10s. Rape cakes unchanged, at £3. 12s. 6d. per ton.

PAINTS.—With home and export orders makers continue busy without any alteration in prices.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There is little or no change in the market for ordinary chemicals in this quarter. Comparative dullness continues to rule, with prices, for the most part, only mechanically upheld, and it is certain that without the binding influence of the Union, values would go down appreciably, in some of the lines at least. Nitrate of soda is quoted down a further peg; and as for sulphate of ammonia it also remains on a declining market, though no further loss of a serious nature has taken place. The f.o.b. Leith prompt value is somewhere between £7. 7s. 6d. and £7. 10s. Forward dealing still hung up. Mineral oils and paraffins (excepting lubricants) are all very unsatisfactory, as before.

Chief prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, soda ash, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, 48/52°, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, 35/37°, £6. 10s. nett, Tyne; saltcake, 19s. to 20s.; borax, English, refined, £16. 10s. and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4d. less 5%, any port; nitrate of soda, 7s. 6d. to 7s. 9d.; sulphate of ammonia, £7. 7s. 6d. to £7. 10s., prompt, f.o.b. Leith; sal ammoniac, first and second white, £33. and £31. nett, any port; sulphate of copper, £16. 5s. less 5%, Liverpool; paraffin scale, hard, 1½d. to 1¾d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¾d. to 2d. per lb.; paraffin spirit (naphtha), 6d. to 6½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. Week's imports of sugar at Greenock were 23,902 bags beet unrefined, and 1,100 bags beet refined.

TYNE CHEMICAL REPORT.

SATURDAY.

Chemicals continue unchanged, with a fair demand for caustic soda, particularly high strength. Soda crystals, 76/77%, £2. 12s. 6d. per ton, gross weight, locally. Bleaching powder and sulphur quiet.

Bleaching powder, softs, £6. 10s. per ton, nett; hard, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett; do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt steady, at 9s. to 9s. 6d. per ton, f.o.b. Tees.

COALS.—Trade is brisker, and deliveries are being pressed for previous to the holidays. Coke very firm, the majority of producers

being fully sold for some little time ahead; price varies from 1 and 18s. to 20s., according to quality, delivery, etc. Best North steam, 8s. 6d. to 8s. 9d. per ton; second qualities, 7s. 7s. 9d. per ton; small steam, 3s. 9d. to 4s. per ton; household quiet, 10s. to 11s. per ton; gas coals, 7s. 6d. to 8s. per ton; 15s. 6d. to 20s. per ton.

New Companies.

London Aluminium Co., Ltd.—CAPITAL £1,000., in shares each. This company has been formed to purchase, sell, and alumina, aluminium alloys, and other metallic alloys and compounds.

Birmingham Oxygen Co., Ltd.—CAPITAL £5,000., in £1. (of which 1,000 are deferred). This company has been formed to manufacture, compress, and sell oxygen, carbon dioxide, hydrogen, nitrogen, etc., gases.

Cardiff Asbestos and Belting Co., Ltd.—CAPITAL £10, £5. shares. This company has been formed to acquire and the businesses of the Cardiff Asbestos and Belting Co., at Cardiff, Liverpool. Registered office, 2, St. James-street, Bute Cardiff. The subscribers to the memorandum of association are: T. Lewis, 61, Plymouth-road, Penarth, merchant; R. E. Williams, Clare-street, Cardiff, manager; L. Tylor, Kingsbridge, Devon, man; T. P. Edmunds, 28, Plasterton avenue, Cardiff, accounts; E. Brukewich, 183, Newport-road, Cardiff, merchant; W. H. W. 30, Strathnairn-street, Cardiff, accountant; F. R. Hamp, 68, broke-road, Cardiff, manager.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending May 29th.

Acetate of Lime—
U.S., 278 bgs. J. R. Francis & Co.
Holland, 5,737 H. Wallace & Co.

Acetic Acid—
Holland, 50 pks. R. W. Greeff & Co.
" 104 A. & M. Zimmermann

Acetone—
France, 11 drs. A. H. Wintersgill
Holland, 2 cks. G. Rahn & Co.

Alkali—
France, 306 c. P. Hecker & Co.
Germany, 100 J. Barber & Co.

Alum—
France, 270 pks. Ohlenschlager Bros.
Holland, 30 cks. H. Lorenz

Ammonium Chloride—
Holland, 30 cks. H. Lorenz

Antimony—
Japan, 20 t. F. Williams, Ltd.

Arsenic—
Adelaide, 30 pks. Davies, Jones & Co.
France, 40 cks. G. Boor & Co.

Asbestos—
Germany, £50 Craven & Co.
Canada, 400 W. Byford & Co.
N. Russia, 150 Deering & Robottom
Italy, 130 Brit. Asbestos Co.

Barium Chloride—
Germany, 10 cks. Petri Bros.

Barytes—
Holland, 47 cks. O'Hara & Hoar
" 21 H. Keller & Co.
" 41 E. J. Diggins
" 151 W. Harrison & Co.

Bleaching Soda—
Germany, 200 pks. H. Lambert

Boric Acid—
Italy, 10 pks. Orio Chem. Co.

Camphor—
Lancaster, 1 c. T. A. Shepherd & Co.

Caoutchouc—
E.I., 150 c. Ross & Deering
U.S. Columbia, 20 c. Lewis & Peat
" 20 Prop. Bull. Wf.

France, 70 c. H. Johnson & Sons
Penang, 158 Butler's Wf. Ltd.
" 64 E. Boustead & Co.
Ceylon, 24 J. A. Hadden & Co.
Zanzibar, 10 S. Figgis & Co.

Ceylon, 1 L. & I. D. Jt. Co.
Colombo, 1 Colombo Coml. Co.

Carbolic Acid—
Holland, 72 pks. J. Barber & Co.

Castor Oil—
E. I., 160 cks. Cayzer, Irvine & Co.

Chemicals (otherwise undesignated)
Holland, £8 G. Rahn & Co.
" 12 F. Boehm
" 268 T. H. Lee

Germany, 8 Philipps & Graves
" 175 L. & I. D. Jt. Co.

Melbourne, 150 W. A. Sparrow & Co.
" 194 John Cockerill Line

Holland, 20 J. Barber & Co.
" 667 A. & M. Zimmermann

Germany, 667 T. Palmer
" 467 T. H. Lee
" 62 O. Scholzig
" 975 F. Parker
" 21 Sorensen & Co.
" 16 H. Lorenz

Cream of Tartar—
France, 12 cks. B. & F. Wf. Co.

Spain, 10 W. C. Bacon & Co.
" 12 W. C. Bacon & Co.

France, 5 M. Ashby, Ltd.
" 20 W. C. Bacon & Co.
" 20 Kirkpatrick & Co.

Dextrine—
Germany, 100 bgs. Hernu, Peron & Co.
" 35 Fronk, Davis & Co.

Dyestuffs—
Alizarine
E. Indies, 6 cks. W. B. Jameson

Aniline
Holland, 2 cks. J. Owen

Argols
Italy, 567 bgs. B. Jacob & Sons
France, 47 B. & F. Wf. Co.

Cochineal
Canaries, 20 bgs. Sperling & Williams
" Tomkins
A. Turkey, 7 Hildesheim & Co.

Extracts
Germany, 100 bls. J. Knill & Co.
France, 540 cks. Boucher, Mortimore & Co.
U. States, 10 Rosenberg, Loewe & Co.

France, 17 J. Harrison
" 50 C. Faust & Co.
" 185 L. J. Levinstein & Sons

" 54 pks. Union L. Co.
" 2 T. H. Lee

Germany, 5 cks. Sorensen & Co.

Gambier
Singapore, 272 bls. J. Swire & Sons

Indigo
C. America, 20 cts. H. W. Jewesbury
" 1 Cotesworth & Powell

E. Indies, 39 Ross & Deering
" 2 Arbuthnot, Latham & Co.

", 52 Lewis & Peat
" 1 cs. Montgomerie & Co.

", 23 L. & I. D. Jt. Co.

Myrabolams
E. Indies, 5,000 pkts. A. B. Curtis & Co.
" 1,420 bgs. Baxter & Hoare

", 10 Ralli Bros.
" 829 Clarke & Smith

Saffron
Spain, 1 cs. Dawson Bros.

Shumac
Italy, 100 bgs. M. D. Co.

", 300 J. E. Scott
" 299 Beresford & Co.
" 500 I. Kitchen
" 70 R. Waters

Tanners' Bark
Adelaide, 1 t. Baxter & Hoare
Natal, 36 A. & W. Nesbitt
" 33 Flack, Chandler & Co.

", 72 Dyster, Nalder & Co.

", 69 Goad, Rigg & Co.
Belgium, 12 J. Harrison
Adelaide, 55 Dyster, Nalder & Co.

Turmeric
E. Indies, 150 bgs. Nich's Wvs., Ltd.
" 191 L. & I. D. Jt. Co.
" 160 Williams, Torrey & Co.

Valonia
A. Turkey, 167 t. A. & W. Nesbitt
" 176 Hicks, Nash & Co.
" 30 A. J. Humphrey
" 110 F. Claydon & Co.
" 100 Boucher, Mortimore & Co.

", 59 Adam Bros.

Farina—
Holland, 100 bgs. J. Barber & Co.
" 120 H. Lorenz

Gamboge—
Singapore, 18 cks. L. & I. D. Jt. Co.

Glucose—
France, 200 pks. 200 c. W. E. Cole
U. States, 2,000 2,000 c. Fellows, Morton & Co.

" 3,710 3,710 Pears

" 300 300

France, 200 200

U. States, 500 500 J. T. O'Brien

" 100 100

" 500 500 L.

" 10 37 5.3

" 30 307 3.4

" 500 500 Beresford

" 500 500 E. T.

" 1,400 1,400 De

" 250 25 Thos

" 250 250 Union I.

" 1,700 4,850 R.

Glue—
France, £92 J. I.

U. States, 22 Armes

Holland, 60 G. Rahn

Germany, 60 C. A. & H. I.

Belgium, 106 J. Bouché

France, 90 Caixes

" 79 Menu For

Germany, 75 L. & I. D.

" 58 Hillman

Holland, 24 Curry

" 25 H. Johnson

Austria, 145 J. Barber

" 250 J.

Infusorial Earth—
Germany, £12 C. V.

Lead Acetate—
Germany, 17 cks. F.

Manure—
Germany, 53 t. F. W. Bark & Co.

" 10 Charlton

" 18 A. J. Lake

France, 50 Barnett Bros.

" 8 G. S. Yell

Brisbane, 8 Goad, Rigg

E. Indies, 200 A. Hunter

Metallic Oxide—
Germany, 4 cks. Bels. And-H

Methyl Alcohol—
France, 20 cks. F. V. T.

Germany, 7 dms. Santos, Canis

Mica—
U. States, £70 C.

E. Indies, 132 Riss & D.

" 50 Carter, Paterson

eral White—
ang, 100 cks. H. Johnson & Sons
asses—
States, 100 cks, 550 c. Deering &
Robottom
250 13 Falkenburg &
Hesse
100 618 L. & I. D.
Jt. Co.
e—
11, 18,297 bgs. W. Montgomery
& Co.
e—
100, 4 cks. O'Hara & Hoar
100 W. Harrison & Co.
land, 3 cs. Philipps & Graves
phates—
ates, 100 bxs. Seaward Brs.
phate Rock—
um, 225 t. D. de Pass & Co.
120 Lawes Chemical
Manure Co.
etersburg,
500 brls. Fellows, Morton,
& Co.
ago—
on, 64 cks. Cayzer, Irvine,
& Co.
33 Montgomery &
Workman
Williams,
640 Torrey, & Co.
ium Bicarbonate—
and, 12 cks. A. & M. Zimmer-
mann
ium Carbonate—
any, 20 c. M. D. Co.
120 Petri Brs.
ium Chloride—
any, 250 bgs. F. W. Berk & Co.
ium Nitrate—
dies, 245 bgs. Philipps & Graves
ium Permanganate—
ind, 25 cks. G. Rahn & Co.
ie Stone—
4 t. H. Johnson & Sons
3 Fellows, Morton,
& Co.
16 J. E. Power
12 Taylor Brs.
17 Claydon & Co.
3 W. J. Davies & Co.
17 Scobbs & Co.
3 O'Hara & Hoar
ies, 1
—
8—
ron, 938 t. Mason & Barry
1,200 Naylor, Benson, & Co.
ilver—
100 flks. H. Bath & Son
25 btl. H. J. Enthoven
& Son
ies, 112 L. & I. D. Jt. Co.
im, 3 brls. John Cockerill Line
tre—
ny, 40 cks. J. Hall & Son
ies, 1,378 bgs. Lucas & Spencer's
Wf.
ny, 1,366 Ralli Brs.
ny, 70 cks. S. E. Railway Co.
in, 20 Petri Brs.
m, 20 c. Sawyer, Sons, & Co.
100 W. G. Jacobs
500 Lamb & Co.
1,000 J. W. Barker
3,484 R. Waters
id, 2,000
n Acetate—
s, 56 cks. J. Harrison
m, 23 H. Lorenz
n Sulphate—
ny, 120 cks. Deering &
Robottom
m, 90 cs. T. H. Lee
280 Becker & Wagner
id, 1,880 Little & Johnston
tes, 40 bgs. R. G. Hall & Co.
di, 40 cs. G. Rahn & Co.
40 Philipps & Graves
—, 618 Horne & Co.
tes, 950 bgs. R. Bennett & Co.
ny, 200 cs. C. Tennant, Sons,
& Co.
80 J. Barber & Co.
40 Leach & Co.
120 Taylor Brs.
350 W. E. Co
375 E. & T. Pin

U. States, 200 bgs. L. & I. D. Jt. Co'
375 pks. C. Tennant, Sons,
& Co.
" 400 bxs. Pickford & Co.
20 brls. Beck & Pollitzer
Germany, 50 cs. J. Hall, junr.,
& Co.
Belgium, 80 Hore, Scrivener
Stearine—
Holland, 26 bls. G. Rahn & Co.
Belgium, 191 bgs. 5 cks. H. Hill &
Sons
France, 95 bgs. G. Boor & Co.
Talc—
France, 460 Wainwright Brs & Co.
40 Stobbs & Co.
Tar—
Germany, 381 brls. Linck, Moell,
& Co.
" 300 Dussek Brs. & Co.
Tartaric Acid—
Holland, 13 pks. Kirkpatrick & Co.
" 6 F. C. Devon & Co.
" 23 B. & F. W. Co.
Ultramarine—
Holland, 1 cs. Hammond & Co.
Belgium, 5 brls. W. Harrison & Co.
Varnish—
Germany, 19 pks. H. Lambert
U. States, 6 Dawson Brs.
" 20 Taylor Brs.
Verdigris—
France, 2 cks. A. Fergusson
& Co.
Waste Salt—
Germany, 250 bgs. R. W. Greeff & Co.
White Lead—
Holland, 55 cks. F. G. Clifford
" 30 Burrell & Co.
" 25 Taylor Brs.
Belgium, 40 brls. Leach & Co.
" 34 cks. J. L. Lyon & Co.
" 40 Robertson, Seller, & Co.
Germany, 56 Randall Brs.
" 15 Blundell, Spence & Co.
Holland, 50 T. & W. Farmiloe, Ld.
" 20 A. & M. Zimmer-
mann
Germany, 29 Perkins & Homer
" 18 N. J. Fenner & Co.
Holland, 10 Blundell, Spence & Co.
Wood Pulp—
Germany, 60 pks. Christophersen
& Co.
Sweden, 970 Henderson, Craig,
& Co.
U. States, 416
258 E. J. & W. Goldsmith
Sweden, 292 C. S. Lovell
Norway, 3,090 London Paper Mills
Co.
" 691 W. G. Taylor & Co.
Holland, 262 Philipps & Graves
Canada, 440 E. J. & W. Goldsmith
Norway, 250 Tough & Henderson
Canada, 744 Becker & Co.
Belgium, 3,488 E. J. & W. Goldsmith
Norway, 300 W. E. Bott & Co.
Zinc Oxide—
Holland, 8 cks. J. Owen
" 8 Brit. Anti-Fouling
Comp.
" 5 J. Barber & Co.
" 25 J. Matton
" 50 Burrell & Co.
LIVERPOOL.
Week ending May 27th.
Aluminium—
New York, 136 bxs. T. Ashbury
Barytes—
Rotterdam, 39 cks.
Antwerp, 51 150 bgs.
Borax—
Galveston, 3,160 bgs. Balfour
Williamson
" 7,101 Tac Borax &
Chem Co.
Castor Oil—
Calcutta, 100 cs. Ralli Brs.
Cobalt Oxide—
Rouen, 12 cs. Co-op. W'sale
Society, Ld.
Cream of Tartar—
Bordeaux, 32 cks.
Dried Blood—
Alexandria, 114 brls.
Dyestuffs—
Argols
Oporto, 9 cks.

Divi Divi
Havre, 350 bgs. Cunard
S. S. Co., Ld.
Hamburg,
102
Madder
Smyrna, 25 bls.
Saffron
Valencia, 4 cs.
Shumac
Palermo, 180 bgs.
Valonia
Syra, 530 bgs.
Smyrna, 153 t. 10 c. 3,033
206 10 G. Essayan
& Co.
Missaloughi, 114 Robinson &
Hadwen
Flour Spar—
Hamburg, 39 cks.
Gelatine—
Rouen, 10 cs. Co-op W'sale
Society, Ld.
Glucose—
Newport News, 100 brls.
New York, 150
" 100 T. M.
Duche & Sons
Boston, 459 212
Glue—
Rouen, 36 cks. 20 bls. 3 cs. Co-op.
W'sale Society, Ld.
Rotterdam, 104 bgs.
Fiume, 100 49 pks.
Stettin, 70 bskts. N. Johansen
& Dahl
Lamp Black—
New York, 40 brls.
Gothenburg, 20 cs.
Newport News, 186 W. Candery
& Co.
New York, 10 cs. H. B. Holding
Mineral White—
Fiume, 220 bgs.
Naphtha—
Antwerp, 7 dms.
Ochre—
Rouen, 29 cks. Co-op. W'sale
Society, Ld.
Paint—
New York, 5 brls.
Paraffin Scale—
New York, 231 brls. Thompson &
Bedford
Philadelphia, 900 350 cs. Anglo-
American Oil Co., Ld.
Phosphates—
Dunkirk, 500 bgs.
Ghent, 4,080
Potash—
Rouen, 100 cks. Co-op. W'sale
Society, Ld.
Antwerp, 3
Hamburg, 10
Dunkirk, 20 dms.
Rotterdam, 10
Pyrates—
Huelva, 2,601 t. Matheson & Co.
Rosin—
New York, 45 brls.
Boston, 405
Saltpetre—
Calcutta, 3,388 bgs. Ralli Brs.
Hamburg, 6 cks.
Soap—
New York, 185 bxs.
Boston, 12 cs. J.
Thompson
Hamburg, 1
New York, 30 Hutton &
Cookson
Boston, 8 W. Foggett
Philadelphia, 1,000 6 crts.
Soapstone—
Bordeaux, 400 bgs. Geo. G. Black-
well, Sons & Co.
Sodium Nitrate—
Caleta Buena, 11,604 bgs. Inglis,
Lomax & Co.
Sodium Phosphate—
Antwerp, 5 brls.
Starch—
Newport News, 1,500 bgs.
New York, 200
Bremen, 180 cs.
New York, 36 brls. J. Armstrong
& Co., Ld.
Amsterdam, 80 cs.
Antwerp, 820
" 305 J. T. Fletcher
& Co.

Stearine—
Antwerp, 13 bgs. J. T.
Fletcher & Co.
Tallow—
New York, 50 bds. Co-op.
W'sale Society, Ld.
Campana, 100 273 cks.
New York, 100
Boston, 75 tcs J. Mackee & Co.
Tartar—
Bordeaux, 1 ck.
Tartaric Acid—
Bordeaux, 5 cks.
Rotterdam, 17
Treacle—
Boston, 794 brls.
Bordeaux, 15 cs.
Stettin, 25 cks.
Ultramarine—
Rotterdam, 16 cks.
Hamburg, 1 cs.
Varnish—
Rotterdam, 2 cks.
White Lead—
Rotterdam, 85 cks.
Dunkirk, 38 brls.
Wood Pulp—
Gothenburg, 14 bls. G. F. Green
& Co.
Norrkoping, 150
Skutskar, 1,480
Boston, 140 crts. Lever
Brs.
Rotterdam, 76
" 153
Zinc Oxide—
New York, 50 brls.
Rotterdam, 20 cks. J. Matthews
& Co.
Antwerp, 85
Zinc White—
Rotterdam, 60 cks.

MANCHESTER.
Week ending May 29th.

Acetic Acid—
Rotterdam, 85 blns.
Alumina Sulphate—
Antwerp, 30 cks.
Aluminous Cake—
Rotterdam, 25 cks.
Ammonia—
Rotterdam, 15 cs.
Aniline Colours—
Rotterdam, 25 cks.
Aniline Salts—
Rotterdam, 6 cks.
Antimony—
Rotterdam, 4 cks.
Antimony Oxide—
Hamburg, 1 ck.
Barium Chloride—
Hamburg, 22 cks.
Barytes—
Antwerp, 100 bgs.
Hamburg, 33 cks.
Bone Ash—
Pelotas, 185 t. Haycroft &
Pethick
Chemicals (otherwise undescribed)
Rotterdam, 21 cks.
Rouen, 22
Colours—
Rotterdam, 23 cks. 32 cs. 85 brls.
Boulogne, 4 bxs.
Antwerp, 4 3
" 5 J. T. Fletcher & Co.
Cream of Tartar—
Rotterdam, 14 cks. 20 kgs.
Dyestuffs—
Alizarine
Rotterdam, 91 cks. 8 cs. 25 brls.
4 bxs.
Shumac
Palermo, 215 bgs. 12 bls.
Farina—
Hamburg, 100 bgs.
Stettin, 440
Glucose—
Stettin, 1,294 bgs.
Glue—
Antwerp, 5 brls.
Rotterdam, 140 bgs. 10 cs.
Rouen, 28 cks. 33 16 bls.
Hamburg, 10

Phosphate —	
Ghent, 1,000 bgs.	
Pitch —	
Rotterdam, 5 cks.	
Potash —	
Montreal, 55 brls.	
Potassium Chloride —	
Hamburg, 40 dms.	
Pumice Stone —	
Messina, 2 cs. 130 bgs.	
Salt —	
Hamburg, 200 cs.	
Soap —	
Rotterdam, 3 cs.	
Sodium Nitrate —	
Rotterdam, 12 cks.	
Starch —	
Hamburg, 30 cks.	
Antwerp, 326 cs.	
Rotterdam, 60	
Stearine —	
Rotterdam, 14 bgs.	
Sulphuric Acid —	
Rotterdam, 30 cks.	
Tannic Acid —	
Hamburg, 5 cks.	
Tar Salts —	
Hamburg, 2 cks.	
Tar Waste —	
Rotterdam, 4 cks.	
Tartar —	
Hamburg, 10 cks.	
Tartaric Acid —	
Rotterdam, 22 cks.	
Waste Salt —	
Hamburg, qty.	
Wood Pulp —	
Christiania, 294 bls. 35 cs.	
Hamburg, 306	
Rotterdam, 400 pks.	
Kallers, 2,918 Stott, Coker, & Co.	
Hommelvik, 5,034 W. Gallagher & Son	
Zinc Ashes —	
Antwerp, 8 cks.	
Zinc Oxide —	
Rotterdam, 90 brls.	
Hamburg, 10 cks.	
Zinc White —	
Rotterdam, 20 cks.	

HULL.

Week ending May 29th.

Acetic Acid —	
Rotterdam, 34 balloons Hutchinson & Son	
Albumen —	
Hamburg, 5 cks. Wilson, Sons, & Co., Ltd.	
Alizarine —	
Rotterdam, 23 pks. W. & C. L. Ringrose	
Hamburg, 18 brls.	
Arsenic —	
Hamburg, 30 brls. Wilson, Sons, & Co., Ltd.	
Barytes —	
Amsterdam, 60 cks. Hutchinson & Son	
Antwerp, 200 bgs. S. Tudor & Co.	
Bramen, 22 cks. Hutchinson & Son	
Rotterdam, 63 cks.	
Antwerp, 100 bgs. H. F. Pudsey	
" 41 cks. A. Sanderson & Co.	
" 21 Gibson Bros.	
Amsterdam, 45 W. & C. L. Ringrose	
Chemicals (otherwise undescribed)	
Rotterdam, 1 bbl. Hutchinson & Son	
New York, 1 dm. Wilson, Sons, & Co., Ltd.	
Antwerp, 41 pks. 2 cks. "	
Hamburg, 2 "	
Dunkirk, 60 "	
God Oil —	
Amsterdam, 162 pks. Wilson, Sons, & Co., Ltd.	
Bergen, 190 brls. "	
Colours —	
Rotterdam, 2 cks. Wilson, Sons, & Co., Ltd.	
Rotterdam, 7 pks. Hutchinson & Son	
" 2 cks. Bailey & Leatham, Ltd.	
Antwerp, 3	

Christiania , 20 cks. Wilson, Sons, & Co., Ltd.	
Hamburg , 8 cs. W. & C. L. Ringrose	
Rotterdam , 52 pks. 2 bxs. Ringrose	
" 91 pks. 2 brls. Wilson, Sons, & Co., Ltd.	
Antwerp , 1 ck. Wilson, Sons, & Co., Ltd.	
Hamburg , 5 cs. "	
Cottonseed Oil —	
New York, 385 brls. Wilson, Sons, & Co., Ltd.	
Cream of Tartar —	
Rotterdam, 4 cks. Hutchinson & Son	
Cryolite —	
Copenhagen, 25 cks. Wilson, Sons, & Co., Ltd.	
Dextrine —	
Stettin, 10 bgs. Wilson, Sons, & Co., Ltd.	
Farina —	
Harlingen, 100 bgs. W. & C. L. Ringrose	
Stettin, 98 Wilson, Sons, & Co., Ltd.	
Glucose —	
New York, 1,884 brls.	
Glue —	
Rouen, 29 cks. Rawson & Robinson	
" 35 bls. Wilson, Sons, & Co., Ltd.	
Dunkirk, 35 cks.	
Litharge —	
Rotterdam, 9 cks.	
Nickel Salts —	
Rotterdam, 1 cs. W. & C. L. Ringrose	
Ochre —	
Rouen, 51 cks. Rawson & Robinson	
Paint —	
New York, 42 pks. Wilson, Sons, & Co., Ltd.	
Dunkirk, 2 cks. "	
Phosphate —	
Ghent, 150 t.	
Pitch —	
Rotterdam, 6 cks. Hutchinson & Son	
Potash —	
Antwerp, 40 dms. Wilson, Sons, & Co., Ltd.	
Saltpetre —	
Antwerp, 135 bgs. Wilson, Sons, & Co., Ltd.	
Soda —	
Antwerp, 200 bgs.	
Sodium Nitrate —	
Iquique, 21,347 bgs.	
Hamburg, 665	
Starch —	
New York, 330 bgs. Wilson, Sons, & Co., Ltd.	
Antwerp, 80 cs. "	
Ghent, 108 "	
New York, 150 bgs. Hutchinson & Son	
Rotterdam, 40 cs. "	
Antwerp, 80 cs. W. W. Osgerby	
Rotterdam, 95 W. & C. L. Ringrose	
Ghent, 135 Hutchinson & Son	
Stearine —	
Antwerp, 15 cs. Wilson, Sons, & Co., Ltd.	
Tallow —	
Antwerp, 111 brls. Wilson, Sons, & Co., Ltd.	
Dunkirk, 15 cks. "	
Tartaric Acid —	
Rotterdam, 8 cks. Hutchinson & Son	
" 2 W. & C. L. Ringrose	
Treacle —	
New York, 2,110 brls. Wilson, Sons, & Co., Ltd.	
Turpentine —	
Libau, 53 brls.	
Ultramarine —	
Rotterdam, 2 cks. Hutchinson & Son	
" 11 pks.	
Varnish —	
Hamburg, 4 cks. Wilson, Sons, & Co., Ltd.	
New York, 20 brls.	
" 25 pks. Wilson, Sons, & Co., Ltd.	
White Lead —	
Amsterdam, 13 cks. Hutchinson & Son	
Antwerp, 16 cks. Bailey & Leatham, Ltd.	
Rotterdam, 28	

Wood Pulp —	
Drontheim, 560 bls. Wilson, Sons, & Co., Ltd.	
Gothenburg, 549 1 pkl. "	
Norrköping, 400 "	
Christiania, 244 230 cs. "	
Helsingfors, 389 J. Good & Sons	
" 104	
Zinc Ashes —	
Gothenburg, 6 brls. Wilson, Sons, & Co., Ltd.	
Zinc Oxide —	
Antwerp, 75 cks. Bailey & Leatham, Ltd.	
Zinc White —	
Antwerp, 40 cks. Bailey & Leatham, Ltd.	
Rotterdam, 5 Hutchinson & Son	
" 25	

GLASGOW.

Week ending June 3rd.

Acetic Acid —	
Rotterdam, 7 cks. J. Rankine & Son	
Arachide Oil —	
Rotterdam, 2 cks.	
Asbestos —	
Genoa, 18 pks. 40 crts.	
Barium Sulphate —	
Antwerp, 300 bgs.	
Barytes —	
Rotterdam, 23 cks. J. Rankine & Son	
Castor Oil —	
Marseilles, 38 cs. 127 brls.	
Colours —	
Hamburg, 9 cks. 1 cs.	
Rotterdam, 4 8 225 pks. J. Rankine & Son	
Cottonseed Oil —	
Marseilles, 185 brls.	
Cream of Tartar —	
Marseilles, 2 brls.	
Tarragona, 10 pipes	
Dyestuffs —	
Alizarine	
Rotterdam, 40 brls. J. Rankine & Son	
Aniline —	
Rotterdam, 79 brls. 9 bxs. J. Rankine & Son	
Madder —	
Marseilles, 4 brls.	
Shumac —	
Amsterdam, 1 cs.	
Palermo, 250 bgs.	
Farina —	
Delfsryhl, 200 bgs. J. Rankine & Son	
Glucose —	
Philadelphia, 500 brls.	
New York, 675	
Glue —	
Hamburg, 50 bgs.	
Mineral White —	
Genoa, 100 bgs.	
Ochre —	
Baltimore, 272 brls.	
Marseilles, 101	
Paint —	
Marseilles, 50 tins	
Phosphate Rock —	
Fernandina, 2,165 t. Alex. Cross & Sons	
Potash —	
Hamburg, 11 cks.	
Rotterdam, 20 J. Rankine & Son	
Pumice Stone —	
Messina, 20 bgs.	
Rosin —	
New York, 701 brls.	
Saltpetre —	
Hamburg, 100 kgs.	
Soap —	
Rotterdam, 6 cs. J. Rankine & Son	
Marseilles, 9	
Hamburg, 2 pks.	
Newport News, 180 brls. W. T. Geddes	
Christiania, 100 Bunter & Co.	
" 3	
Sodium Acetate —	
Antwerp, 22 cks.	

Sodium Sulphate —	
Rotterdam, 1 bbl. J. Rankine & Son	
Starch —	
New York, 150 cks.	
Newport News, 195 J. L. Turrel & Co.	

Stearine —	
St. John's, N'dd., 26 cks.	
Tartar —	
Oporto, 5 cks.	
Tartaric Acid —	
Marseilles, 18 brls.	
Treacle —	
Philadelphia, 100 brls.	
Varnish —	
Antwerp, 2 cks.	
Waste Salt —	
Hamburg, 276 cks. J. Rankine & Son	
White Lead —	
Rotterdam, 172 cks. J. Rankine & Son	
Wood Pulp —	
Drontheim, 960 bls.	
Oporto, 250	
Christiania, 616 10 cs.	
Zinc Oxide —	
Rotterdam, 37 cks. J. Rankine & Son	
Zinc White —	
Rotterdam, 60 cks. J. Rankine & Son	

TYNE.

Week ending May 29th.

Alum Earth —	
Hamburg, 29 cks. Tyne S. S.	
Antimony Ore —	
Tampico, 3,099 bgs. Cookson & Co.	
Barium Chloride —	
Rotterdam, 350 bgs. Tyne S. S.	
Cod Oil —	
Drontheim, 7 brls.	
Colours —	
Antwerp, 2 cks. Tyne S. S.	
Glue —	
Antwerp, 2 cks. Tyne S. S.	
Kieselguhr —	
Bergen, 29 bgs.	
Limestone —	
Antwerp, 7 crts. Tyne S. S.	
Phosphate —	
Antwerp, 243 t. Lang Chemical M.	
Pyrites —	
Huelva, 2,799 t. Tyne S. S.	
" Sulphur & Copper	
Soap —	
Rotterdam, 6 cs. Tyne S. S.	
Soda —	
Antwerp, 7 cks. Tyne S. S.	
Sodium Nitrate —	
Caletta Buena, 2,103 bgs.	
Starch —	
Rotterdam, 24 cs. Tyne S. S.	
Antwerp, 202 "	
Tartaric Acid —	
Rotterdam, 11 cks. Tyne S. S.	
Wood Pulp —	
Christiania, 250 bls.	
Zinc White —	
Rotterdam, 18 cks. Tyne S. S.	

GOOLE.

Week ending May 29th.

Acetic Acid —	
Rotterdam, 2 cs.	
Alizarine —	
Rotterdam, 30 brls.	
Antimony —	
Boulogne, 2 cks. 1 cs.	
Caoutchouc —	
Boulogne, 9 cks.	
Dyestuffs (otherwise undescribed)	
Boulogne, 70 cks. 3 cs. 38 k.	
Rotterdam, 525 177	
Hamburg, 100 bgs.	
Madder —	
Rotterdam, 2 cks.	
Pitch —	
Antwerp, 2 cs.	

GRIMSBY.			Hamburg, 35	Indigo—
<i>Week ending May 29th.</i>				Rotterdam, 11 cts. 2 cs.
Am, 8 cks.	21 dms.	Aniline—	Caoutchouc—	Pitch—
Acid— 4	32	Antwerp, 51 pks.	Hamburg, 4 cs.	Hamburg, 3 cks.
Am, 2 cks.		Hamburg, 124	Antwerp, 2	Tungsten Metal—
Salt—		Aniline Colours—	Chemicals (otherwise undescribed)	Hamburg, 11 s.
G, 100 t.		Antwerp, 13 pks.	Hamburg, 1 cs. 12 pks.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			Genoa, 1 t. 15 kgs. 1	234	Montreal, 2	17 c.	20	M. Video, 5	27
<i>Week ending June 2nd.</i>			Sydney, 13 c.	73	Auckland, 51		150	Yokohama, 1 t. 1	116
			E. London, 1	12	Jamaica, 10	3	100	Brisbane, 2	11
			Rotterdam, 1	114	Myrbane—			Sydney, 1	10
			Pt. Elizabeth, 6	35	Napier, 10 cs.	15 c.	£45	Melbourne, 3	20 kgs. 279
			Libau, 6	39	Sydney, 30		90	Kobe, 2	385
			Brussels, 25 kgs. 10	230	New York, 10 c.		£12		221
			Antwerp, 5	29	Muriatic Acid—				
			Amsterdam, 9	51	Rio de Janeiro, 10 c.		£12		
			Adelaide, 1	15	Nitric Acid—				
			Coal Products—		Pt. Elizabeth, 6 cs		£12		
			Alizarine		Jersey, 14 carboys		28		
			Dunedin, 6 brls. 10 cks.	£247	Oxalic Acid—				
			St. Petersburg, 3 cs.	159	Yokohama, 10 c.		£17		
			New York, 10	109	Phosphate—				
			Aniline		Grenada, 10 t.		£25		
			Odessa, 9 kgs.	£187	Phosphorus—				
			Singapore, 2 cs.	£10	Melbourne, 4 c.		£41		
			Aniline Oil		Wellington, 4 cs.		177		
			New York, 12 dms.	£430	Pieric Acid—				
			Naples, 5 cks.	£35	Melbourne, 2 c.		£14		
			New York, 25	210	Potash—				
			Anthracene		Napier, 6 c.		£6		
			Dusseldorf, 230 cks.	£953	Melbourne, 1 t. 2		41		
			Benzol		Philadelphia, 3		68		
			Rotterdam, 48 cks. 10 puns.	£517	Montreal, 2 cs		38		
			Hamburg, 40	365	Potash Salts—				
			Stettin, 40	360	Auckland, 22 t. 18 c.		£1,496		
			New York, 40 dms.	575	Madras, 16		1,300		
			Boulogne, 160	500	Potassium Chloride—				
			Creosote		E. London, 15 c.		£26		
			St. Malo, 22,916 gals.	£119	Potassium Chloride—				
			New York, 800 cks.	522	Colombo, 15 t.		£150		
			Newport News, 500	331	Potassium Cyanide—				
			Creosote Salts		Melbourne, 1 t.		£101		
			Cologne, 752 bgs.	£75	Auckland, 10		855		
			Naphtha		New York, 100 cs. 9 c.		495		
			Ghent, 32 brls.	£60	Singapore, 50		455		
			Naphthaline		Potassium Iodide—				
			Rotterdam, 10 cks.	£13	Pt. Elizabeth, 1 cs.		£27		
			Copenhagen, 4	10	Potassium Prussiate—				
			Pitch		Genoa, 19 cks.		£232		
			Varna, 60 brls.	£19	Rotterdam, 17		225		
			Hochfeld, 180 t.	262	Sal Acetos—				
			Dusseldorf, 140	170	Treport, 1 t. 10 c.		£50		
			Montreal, 140	86	Salicylic Acid—				
			Calcutta, 25	16	Montreal, 2 cs.		£22		
			Antwerp, 1,487	2,324	Saltpetre—				
			New York, 160 bgs.	26	Hamburg, 10 c.		£11		
			Prussian Blue		Sheep Dip—				
			Amsterdam, 3 cks.	£7	E. London, 15 t. 2 c.		£360		
			Pyridine Bases		Delagoa Bay, 2		105		
			Hamburg, 4 dms.	147	B. Ayres, 2,100 cs.		4,725		
			Tar		N. Orleans, 1,000		2,250		
			St. Petersburg, 1,152 brls.	£749	Calcutta, 500 dms.		29		
			Sydney, 200 pks.	40	Auckland, 2 t. 3		45		
			E. London, 50 dms.	6	Beira, 25 dms.		5		
			Delagoa Bay, 209	33	Soda Ash—				
			New York, 25 cks.	36	Auckland, 10 t. 1 c.		£50		
			Tar Oil		Soda Crystals—				
			Gothenburg, 500 cks.	£370	Bermuda, 1 t. 13 c.		£5		
			Copper Sulphate—		Singapore, 3		10		
			Hamburg, 5 t.	£84	Sodium B. carbonate—				
			Bombay, 1	27	Jamaica, 1 t. 3 c.		£6		
			Libau, 11 c.	9	Kobe, 1		28		
			Odessa, 10	175	Sodium Prussiate—				
			Salonica, 1	16	Hamburg, 2 cks.		£24		
			Antwerp, 10	168	Sodium Silicate—				
			Peris, 56	940	Napier, 5 t. 14 c.		£44		
			Libson, 40	675	Sodium Sulphate—				
			Cream of Tartar—		Ghent, 100 t.		£150		
			Melbourne, 1 t. 10 c.	£116	Sulphur—				
			Adelaide, 10	38	E. London, 3 t. 15 c.		£22		
			Invercargill, 5	22	Libson, 250 brls.		174		
			Sydney, 1	77	Sulphuric Acid—				
			Kobe, 10	44	E. London, 20 cs.		£14		
			Disinfectants—		Superphosphates—				
			Hamburg, 25 cks.	£125	Demerara, 8 t.		£18		
			Kurrachee, 5 pks.	36	Canaria, 10		10 c.		
			Calcutta, 50	23	Tartaric Acid—				
			Penang, 50 dms.	17	Adelaide, 5 c.		£31		
			Hydrochloric Acid—		Braila, 3 pks.		41		
			E. London, 15 cs.	£18					
			Manure—						
			Dunedin, 200 t.	£900					
			Morlaix, 85	320					
			Barbadoes, 28	220					

Copenhagen, 2 12 55	Stettin, 2 9 3 q. 40	Potassium Chlorate—	Soda Crystals—
Quebec, 2 12 35	Amsterdam, 1 7 22	Sydney, 5 t. £163	Alexandria, 100 brls.
Montreal, 6 12 127	Sydney, 1 7 16	Melbourne, 5 5 c. 176	Freemantle, 20
Pacasmayo, 6 6 7	Calcutta, 5 5 84	Gothenburg, 5 5 c. 176	Gibraltar, 45 bxs.
Hamburg, 16 6 302	Barcelona, 9 10 154	New York, 20 4 6	Malta, 10
Stockholm, 1 2 30	Gutujewsky, 14 10 1 218	Amsterdam, 2 7 10	M. Video, 67 cs.
Melbourne, 5 107	Hamburg, 29 10 1 486	Kobe, 2 10 10	Montreal, 100 bgs.
Calcium Chloride—	Galatz, 3 10 2	Tampico, 10 10 15	Philadelphia, 347 brls.
Sydney, 3 t. c. 67	Pireus, 1 2 2 20	Gutujewsky, 14 10 472	Valparaiso, 23
Constantinople, 10 4 21	Batoum, 3 2 2 48	St. Petersburg, 30 4 977	Sodium Bicarbonate—
Boston, 28 5 54	Palermo, 2 12 46	Palermo, 2 5 130	Alexandria, 40 brls.
Carbolic Acid—	Messina, 2 12 111	Vera Cruz, 2 10 473	Algoa Bay, 20 kgs.
Baltimore, 11 t. 5 c. £651	Danzig, 9 19 3 163		Bari, 29
Accra, 12 drs. 10 68	Libau, 10 1 1 1048		Bordeaux, 10
Copenhagen, 1 1 40 dms. 51	Rouen, 63 5 1 1048		Calcutta, 375
Lagos, 1 cs. 8 8 548	Naples, 112 2 1 1048		Cape Town, 8 bgs.
Hamburg, 8 8 548	Marseilles, 9 16 164		Cartagena, Sp., 100
B. Ayres, 5 5 28	Venice, 130 17 2 665		Catania, 55
Calcutta, 1 38	Cette, 392 17 3 660		Dantric, 20
Caustic Potash—	Fiume, 86 13 1 1349		Dunedin, 450
Trinidad, 1 t. 7 c. £38	Bombay, 10 1 1 165		Freemantle, 25
Baltimore, 8 15 232	Nantes, 38 7 1 649		Genoa, 100
Havre, 1 7 40	Lisbon, 19 18 2 336		Gutujewski, 500
Caustic Soda—	Genoa, 116 9 3 1826		Hamburg, 100
Alexandria, 70 dms.	B. Ayres, 7 19 150		Hiogo, 1,380
Amsterdam, 332	Leghorn, 30 2 472		Montreal, 575
Antwerp, 52	Rotterdam, 8 8 1 134		Nantes, 34
Bahia, 175	Bordeaux, 429 14 3 7324		Odessa, 54
Baltimore, 50 25 brls. 25 bxs.	Antwerp, 36 19 2 602		Oporto, 30
Barcelona, 100	Copperas—		Palermo, 50
Bari, 31	Talcabano, 5 t. £9		Perth, 210
Bilbao, 75	Sydney, 4 13 c. 2 q. 11		Pt. Natal, 20 30
B. Ayres, 137	Valparaiso, 2 19 6		Rio de Janeiro, 25
Calcutta, 63	Creosote—		Rotterdam, 25
Catania, 65	Lisbon, 16 t. 5 c. £49		Seville, 270
Colon, 17	Disinfectants—		Trieste, 119
Copenhagen, 25	Rangoon, 8 t. £32		Varna, 25
Delagoa Bay, 34	Calcutta, 3 15 c. 59		Wellington, 160
Fiume, 153	Kurrachee, 50 dms. 55		Yokohama, 3,520
Gefle, 25	Iron Oxide—		Sodium Carbonate—
Genoa, 65	Naples, 17 t. 5 c. 2 q. £98		Boston, 50 brls.
Hamburg, 38	Lead Acetate—		Sodium Chlorate—
Havana, 90	New York, 4 c. £5		Genoa, 20 kgs.
Havre, 25	Magnesia—		Gutujewski, 74
Hiogo, 100	B. Ayres, 6 cs. 1 q. £36		Sodium Hyposulphite—
Kobe, 30	Manure—		Montreal, 65 kgs.
La Guayra, 30	Gd. Canary, 4 t. £30		Sodium Sulphate—
Leghorn, 53	Halifax, 2 15 c. 5		Alicante, 50 brls.
Lisbon, 172	M. Video, 6 5 10		Colon, 40
Lithium, 15	Beyrout, 3 17 1 q. 7		Montreal, 40
Malaga, 89	Alexandria, 7 8 3 13		Strontia—
Malta, 24	Las Palmas, 15 119		Hamburg, 224 t. 4 c.
Melbourne, 106	Oxalic Acid—		Sulphur—
Montreal, 300	Boston, 3 t. 3 q. £83		Calcutta, 6 t.
Naples, 55	Barcelona, 10 18 c. 1 311		Pacasmayo, 1 3 c.
N. Orleans, 50	Paint—		Rio de Janeiro, 1
New York, 1,125	Alexandria, 110 kgs. 85 pks.		Boston, 150 6
Odessa, 50	Algoa Bay, 1 ck. 90 brls.		Superphosphate of Bone—
Peking, 715	Beyrout, 2 cs. 12 dms.		Las Palmas, 20 t.
Philadelphia, 60	Calcutta, 300 15		Superphosphates—
Quincy, 60	Constantinople, 140 20 brls.		Barcelona, 15 t. 1 c.
Santo Domingo, 3	Ferrol, 30 15		Cullera, 450
Seville, 30 520	Galatz, 140 20 brls.		Nantes, 149 12
Sydney, 191	La Guayra, 7 20 brls.		Tartaric Acid—
Trieste, 43	New York, 10 cs. 82 cs.		Talcabano, 1 c.
Valencia, 70	Ocos, 52 35		Tonalá, 1
Valparaiso, 25	Para, 20 brls.		Varnish—
Vera Cruz, 17	Philadelphia, 270 43 431		Alexandria, 1 cs.
Chemicals (otherwise under)—	Port Alegre, 35		Bombay, 9
Hamburg, 5 c. £7	Savannah, 4 28		Waste Salt—
Odessa, 7 t. 189	Scio, 4 28		Cape Town, 20 t.
Rotterdam, 1 5 38	Toronto, 43 431		White Lead—
Genoa, 1 5 38	Valparaiso, 43 431		Bahia, 15 kgs.
Palermo, 3 4	Rangoon, 72 40 cs.		Cape Town, 120 dms.
Bari, 10 10	Painters Colours—		Zinc Chloride—
Yokohama, 2 14 3 q. 65	Bahia, 60 cks.		Genoa, 1 t. 1 c.
Galatz, 3 2 34	Bombay, 25 20 kgs. 104 cs.		
New York, 5 151	B. Ayres, 35 7		
Philadelphia, 14 4 432	Calcutta, 12 20 12 dms.		
Calcutta, 3 2 4	Callao, 40 cs.		
China Clay—	Carril, 3 50		
Bombay, 40 cks.	Cartagena, N.G., 20 brls. 367		
Boston, 10 30 t.	Colon, 10		
Calcutta, 30 t.	Halifax, 10		
Coal Products—	Hong Kong, 5 158 30 dms.		
Alizarine Oil	Lagos, 5 4 cs. 9 brls.		
Lisbon, 6 cks.	La Libertad, 5 4 20 dms.		
Antiline Colours	Manaos, 4 20		
Barcelona, 1 ck.	M. Video, 3 20		
Antiline Oil	Montreal, 1		
Genoa, 9 cks.	Phosphorus—		
Creosote	Tampico, 10 c. £110		
Lisbon, 85 cks.	Potassium Bichromate—		
Coal Products (otherwise under)—	B. Ayres, 3 c. 3 q. £8		
Barcelona, 4 cks.	Larnaca, 6 2 14		
Copper Sulphate—	Seville, 3 t. 3 50		
London, 1 t. 6 c. £11	Vera Cruz, 1 19 84		
Naples, 1 5 10 239	Rangoon, 1 1		
Genoa, 1 5 1	Potassium Carbonate—		
Trinidad, 5 1 81	Rosario, 2 c. £5		
Tampico, 7 1 129	New York, 14 t. 7 258		
Constantinople, 5 97			

MANCHESTER

Period ending May 20th

Aniline Colours—	Rotterdam, 11 cks. 1 cs. 1
Aniline Oil—	Hamburg, 2 cks. 1
Rotterdam, 1 tin	
Aniline Salts—	Hamburg, 5 pks.
Asbestos—	Rotterdam, 184 bgs.
Carbolic Acid—	Rotterdam, 24 cks.
Chemicals (otherwise under)	Hamburg, 4 cks.
Glue—	Antwerp, 10 cks. 1
Linseed Oil—	Bombay, 100
Naphthionate—	Rotterdam, 17 cks.

mine—	
44 cks.	
Colours—	
1 cs.	
1,865 t.	
150 bxs.	
5 cks.	
50 cks.	
HULL.	
ending May 29th.	
19 cks.	100 kgs.
Sulphate—	
444 bgs.	
3,000 c.	
50 cks.	
Powder—	
20 cks.	
da—	
24 cks.	3 dms.
2	50
	68
25	
(otherwise undescribed)	
33 cks.	
6	242 cs.
12	25
2	34 pks.
41	93 brls.
20	60 cs.
4	137
157	18 brls. 4 dms.
156	3 cs.
6	24 pks.
1	1,797 lbs.
53	1 pk.
14	5 kgs.
1	10
Oil—	
102 c.	
875	
103	
102	
231	
101	
416	
328	
471	
600	
3 brls.	
10	
(otherwise undescribed)	
3 cks.	
1	75 bgs.
4 cs.	
1	3 kgs.
12	2 dms.
2 bgs.	
Oil—	
und, 126 c.	
617	
and, 35	
en, 165	
87	
320	
4	
14	
3 pks.	
1 cs.	
5 dms.	
Colours—	
63 cks. 2 cs.	1 pk.
77 kgs.	
6	
50	

Bergen,	1	
Christiania,	4	2 73 pks.
Christiansand,	1	56 4 dms.
Copenhagen,	34	1
Danzig,	18	
Dunkirk,	4	2
Gothenburg,	1	2
Hamburg,	16	4
Helsingfors,	10	5
Jersey,		4 pks.
Konigsberg,	26	
Odessa,	470	
Rouen,	8	
Riga,		1
Rotterdam,	8	
Stettin,	1	1 dm.
St. Petersburg,	80	
Wasa,	3	
Paraffin Wax—		
Danzig,		12 cs.
Pitch—		
Antwerp,	478 t.	
Dunkirk,	100	
Soap—		
Antwerp,	13 cs.	
Bergen,	20	
Constantinople,	28	
Tallow—		
Gothenburg,	7 cks.	
Stockholm,	5	
Wasa,	195	
Tar—		
Amsterdam,	11 cks.	
Bremen,	5	
Copenhagen,	18	
Hamburg,	13	
Rotterdam,		15 brls.
Stettin,		10
Wasa,	150	
Treacle—		
Abo,	15 cks.	
Varnish—		
Antwerp,		1 cs.
Copenhagen,	1 ck.	2 dms.
Drontheim,		
Ghent,		1
Libau,		1
Rotterdam,	4	
Stockholm,	1	4

GLASGOW.

Week ending June 3rd.

Albumen—		
U.S.A.,		£56
Ammonium Carbonate—		
Christiania,		£10
Gefle,		39
Stockholm,		8
Ammonium Chloride—		
Spain,		£97
Ammonium Sulphate—		
Almunecar,	3 t.	3/4 c.
Barcelona,	110	19 1/2
Castellon,	217	2 1/2
Cullera,	440	10 1/2
Valencia,	832	13 1/2
Stockholm,		£77
Mauritius,	93	18
Nantes,	10	2 1/2
Barbadoes,	70	15 1/2
Demerara,	111	8 1/2
Trinidad,	56	18 1/2
Bleaching Powder—		
Bombay,	6 t.	3 1/4 c.
Boric Acid—		
Japan,		£33. 19s.
Coal Products—		
Creosote Oil		
France,		£2,325
U.S.A.,		55
Naphtha		
Lyons,		£78
Pitch		
France,		£151
Gothenburg,		170
U.S.A.,		440
Valencia,		38
Canada,		103
Tar		
Riga,	300 brls.	
Canada,		£110
Madras,		70
U.S.A.,		53
Coal Products (otherwise undescribed)		
Christiania,		£85
Rotterdam,		94
Danzig,		539
Dyestuffs (otherwise undescribed)		
Lisbon,		£60

Extracts—		
Malauay,		£67
Lisbon,		£144. 10s.
Canada,		£165
Glucose—		
Canada,		£40
Guano—		
Almunecar,	50 t.	3/4 c.
Gypsum—		
Demerara,		£25
Iodine—		
Rotterdam,		£1,215
Linseed Oil—		
China,	5 t.	10 1/4 c.
Straits Settlements,	1	14 1/4
Litharge—		
Karachi,		£36
Logwood—		
Lisbon,		£143
Manganese—		
Rotterdam,	1 t.	
Manure—		
Barbadoes,	20 t.	1/2 c.
Valencia,	150	4
Paint—		
Lisbon,		£120
Colombo,		32
Limón,	5 t.	4 1/4 c.
Painters' Colours—		
Christiania,		£90. 10s.
Rotterdam,		3 8
Singapore,		qty.
Paraffin Wax—		
Barcelona,		£819
Rouen,		36
Valencia,		96
Huelva,		30
Lisbon,		30
Cape Town,		36
Plumbago—		
Liege,	4 t.	
Potash Salts—		
Delagoa Bay,		£752
Potassium Bichromate—		
Barcelona,		£882
Rouen,		411
Rotterdam,		206
Lisbon,		210
China,		205
Potassium Cyanide—		
Western Australia,		£423
Rosin—		
Calcutta,		£63
Rosin Oil—		
Canada,		£22
Soap—		
China,	3 t.	8 c.
E. London,		2 10
Trinidad,	10	17 1/2
U.S.A.,	1	8
New York,	1	7 1/2
Sodium Bichromate—		
Rouen,	10 t.	2 1/2 c.
Starch—		
Rotterdam,	2 t.	
Tallow—		
Rotterdam,	23 t.	10 c.
Treacle—		
Gothenburg,	18 t.	17 c.
Christiania,	27	17
Stockholm,	18	6 1/2
White Lead—		
Lisbon,		£227

TYNE.

Week ending May 29th.

Alkali—		
Hamburg,	5 t.	11 c.
St. Petersburg,	55	11
Amsterdam,	27	5
Alum Waste—		
Aarhus,	21 t.	15 c.
Ammonium Chloride—		
St. Petersburg,	34 t.	16 c.
Anthracene—		
Rotterdam,	60 t.	19 c.
Antimony—		
Antwerp,	2 t.	
Barium Binocide—		
Rouen,	11 t.	2 c.
Rotterdam,	1	5
Bleaching Powder—		
Antwerp,	20 t.	13 c.
Hamburg,	35	8
Rotterdam,	33	19

Gothenburg,	20	
St. Petersburg,	100	15
Odense,	5	8
Amsterdam,	21	
Bergen,	15	
Caustic Soda—		
Hamburg,	9 t.	17 c.
Genoa,	8	14
Rotterdam,	4	10
Aarhus,	2	7
Abo,	22	19
Litharge—		
Gothenburg,	1 t.	1 c.
Amsterdam,	2	1
Magnesia—		
Hamburg,		1 c.
Copenhagen,		5
Barcelona,	7 t.	7
Paint—		
Rotterdam,		10 c.
Phosphorus—		
Seville,		16 c.
Pitch—		
Rouen,	20 t.	
Salt—		
Aarhus,		1 c.
Saltpetre—		
Aarhus,	5 t.	
Soda—		
Antwerp,	9 t.	18 c.
Hamburg,	16	5
Leighorn,	6	3
Rotterdam,	32	7
Svendborg,	48	4
Harlingen,	10	
Amsterdam,	80	6
Abo,	38	3
Soda Ash—		
Antwerp,	10 t.	
Hamburg,	10	3 c.
Rotterdam,	4	
Gothenburg,	10	3
Abo,	78	8
Sodium Sulphate—		
Gothenburg,	25 t.	
Sulphur—		
Antwerp,	6 t.	
Gothenburg,	10	
Superphosphates—		
Aalborg,	50 t.	
Varnish—		
Nakskov,		8 c.
White Lead—		
Constantinople,	13 t.	17 c.
Odessa,	10	8
Abo,		2

GOOLE.

Week ending May 26th.

Alkali—		
Amsterdam,	1 cs.	
Chemicals (otherwise undescribed)		
Amsterdam,	10 cks.	
Coal Products (otherwise undescribed)		
Amsterdam,	2 cks.	
Antwerp,	250	
Boulogne,	28	
Ghent,	5	1 c.
Hamburg,	80	
Rotterdam,	34	
Dyestuffs (otherwise undescribed)		
Antwerp,	2 cks.	
Ghent,	1	
Logwood—		
Carlsbamm,	112 t.	
Manure—		
Rotterdam,	250 bgs.	
Pitch—		
Antwerp,	570 t.	
Dunkirk,	203	
Salt Cake—		
Ghent,	100 t.	

GRIMSBY.

Week ending May 29th.

Caoutchouc—		
Gothenburg,	1 ck.	1 cs.
Helsingborg,		1 ball.
Malmo,		1
Chemicals (otherwise undescribed)		
Dieppe,	4 cks.	1 cs.
Hamburg,	10	2 dms.
Coal Products (otherwise undescribed)		
Dieppe,	104 cks.	3 kgs. 7 pks.

PRICES CURRENT.

WEDNESDAY, JUNE 9TH.

PREPARED BY MESSRS. HIGGINSBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are f.o.b. at maker's works, or at usual ports of shipment in U.K. The price in different localities may

Lime:		£	s	d
Acetic, 25% and 40%	per cwt.	5/10 1/2	8	3/4
Ammonia S.O., 25%	"	4/0		
Fluoric	per lb.	0 0 1 1/4		
Muriatic (Dewar Salts), 30% Tw.	per bottle	0 0 10		
(Cylinder), 30% Tw.	"	0 0 10		
Nitric 30% Tw.	per lb.	0 0 1 1/4		
Nitrous	"	0 0 1 1/4		
Oxalic	net	0 0 1 1/2		
Phosphoric, 75%	"	0 0 1 1/2		
Phoric	"	0 0 1 1/2		
Sulphuric (finning 90% Tw.)	per ton	15 10 0		
" (monohydrate)	"	5 10 0		
" (pyridic, 100%)	"	3 10 0		
" (free from arsenic, 100%)	"	1 7 6		
Sulphuric (solution) S.G. 1.185	per lb.	0 1 2 1/2		
Tartaric	net	0 1 1		
Acetic, white (pure)	per ton	11 7 6		
Alum (best)	"	4 10 0		
Alumina Sulphate (pure)	"	4 10 0		
Alumina	"	3 10 0		
Alumina (Dewar salt) 40% Tw.	net	3 10 0		
Ammonia, 25%	per lb.	0 0 1 1/4		
" 30%	"	0 0 1 1/4		
" 40%	"	0 0 1 1/4		
" 50%	"	0 0 1 1/4		
" 60%	"	0 0 1 1/4		
" 70%	"	0 0 1 1/4		
" 80%	"	0 0 1 1/4		
" 90%	"	0 0 1 1/4		
" 100%	"	0 0 1 1/4		
Carbonate	per ton	15 10 0		
Chloride	per cwt.	3 10 0		
Hydrate	per cwt.	3 10 0		
Nitrate	per lb.	0 0 4 1/2		
Phosphate	per ton	7 10 0		
Sulphate (grey) London	per ton	7 10 0		
(green) Hull	"	7 10 0		
Aniline Oil (pure)	per lb.	0 0 6 1/4		
Aniline Salt	"	0 0 6		
Antimony	per ton	30 15 0		
" (native arsenic)	per lb.	0 0 0 10		
" (golden sulphide)	"	0 0 0 10		
Barium Chloride	per ton	6 12 6		
" Carbonate (native)	"	3 10 0		
" Sulphate (native irrigated)	"	4 10 0		
Bleaching Powder, 35%	net	6 7 6		
Lime, 7%	"	3 10 0		
Sulphide of Carbon	"	12 0 0		
Chromium Acetate (crystal)	per lb.	0 0 5		
Calcium Chloride	per ton	2 2 6		
China Clay (at Ramona) in bulk	"	15 10 0		
Coal Tar Products and Dyes:				
Anthracene (solid) 80%	net	per lb.	0 0 6 1/4	
Naphthalene	"	0 0 1		
Anthracene, 30% A. & B. London	per unit per cwt.	0 0 6 1/2		
Benzene, 80%	per gallon	0 1 9		
" 100%	"	0 1 11		
Carbolic Acid (solid 80%)	per gallon	0 2 3		
" (crystallized 40%)	per lb.	0 0 7 1/4		
" (liquid 95/97%)	per gallon	0 1 1		
Cresol (ordinary)	"	0 0 2		
" (mixed by London Light)	"	0 0 2 1/2		
Crude Naphtha 30% @ 180° C.	"	0 0 11		
Creosote Oil, 40% Tw.	per ton	2 15 0		
Pitch, 60% Liverpool or Glasgow	"	1 2 0		
Solvent Naphtha, 60% at 180°	per gallon	0 1 8		
Copper	per ton	48 17 6		
" Sulphate	"	16 5 0		
" Oxide (copper metal)	"	44 10 0		
Hydrochloric (pure)	"	31 0 0		
" (distilled & G. 1830)	"	62 0 0		
Iodine	net, per oz.	0 0 7 1/4		
Iron Sulphate (crystallized)	per ton	1 10 0		
" Sulphate (anhydrous)	"	2 0 0		
Lead (sheet) in wash	"	13 2 6		
" Litharge (white) (ex ship)	"	14 15 0		
" Acetate (white)	"	22 0 0		
" " brown	"	15 0 0		
" Carbonate (white lead) pure	"	10 15 0		
" Nitrate	"	19 0 0		
Lime, Acetate (brown) (ex ship)	per ton	5		
" (grey) (ex ship)	"	8		
Magnesium (ribbon and wire)	per oz.	0		
" Chloride (ex ship)	per ton	1		
" Carbonate	per cwt.	1		
" Calcined Magnesia	per ton	9		
" Sulphate (Epsom Salts)	per ton	3		
Manganese, Sulphate	per cwt.	16		
" Borate	per cwt.	2		
" Ore, 70%	per ton	3		
Methylated Spirit, 61° O.P.	per gallon	0		
Naphtha (Wood), Solvent	"	0		
" Miscible, 60° O.P.	"	0		
Oils:				
Cotton-seed	per ton	15		
Linseed	"	10		
Stearine	per ton	19		
Phosphorus (yellow)	per lb.	0		
(red)	"	0		
Potassium (metal)	per oz.	0		
" Bichromate	per lb.	0		
" Carbonate, 90% (ex ship)	per ton	16		
" Chlorate	per lb.	0		
" Cyanide, 98%	"	0		
" Hydrate (Caustic Potash) 90%	per ton	24		
" (Caustic Potash) 75/80%	"	20		
" (Caustic Potash) 70/75%	"	19		
" Nitrate (refined)	per cwt.	1		
" Permanganate	per cwt.	3		
" Prussiate Yellow	per lb.	0		
" Sulphate, 90% (ex ship)	per ton	9		
" Muriate, 80% (do.)	"	8		
Silver (metal)	per oz.	0		
Sodium (metal)	per lb.	0		
" Carb. (refined Soda-ash) 48%	net per ton	4		
" (Caustic Soda-ash) 48%	"	4		
" (Carb. Soda-ash) 48%	"	4		
" (Alkali) 58%	"	1		
" (Soda Crystals)	"	1		
Acetate (ex-ship)	"	12		
Arseniate, 45%	"	14		
Chlorate	per lb.	0		
Borate (Borax)	net, per ton	16		
Bichromate	per lb.	0		
Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	"	9		
" (74% Caustic Soda)	"	8		
" (70% Caustic Soda)	"	7		
" (60% Caustic Soda)	"	6		
" (pure liquor 90° Tw.)	"	3		
" 77/78% powdered (99% hydrate)	"	12		
Bicarbonate	"	6		
Hypophosphite	"	5		
Manganate, 25%	"	15		
Nitrate (95%) ex-ship Liverpool	per cwt.	0		
Nitrite, 98%	per ton	30		
Phosphate	"	11		
Silicate (glass)	per ton	4		
" (liquid, 100° Tw.)	"	3		
Stannate, 40%	per cwt.	1		
Sulphate (Salt-cake)	per ton	1		
" (Glauber's Salts)	"	1		
Sulphide	"	6		
Sulphite	"	5		
Strontium Hydrate, 100%	"	3		
Sulphocyanide Ammonium, 95%	per lb.	0		
" Barium, 95%	"	0		
" Potassium	"	0		
Sulphur (Flowers)	per ton	7		
(Roll Brimstone)	"	6		
Brimstone: Best Quality	"	4		
Superphosphate of Lime (26%)	"	2		
Tallow	"	15		
Tin Crystals	per lb.	0		
" English Ingots	"	6		
Zinc Spelter	per ton	17		
" Chloride solution, 100° Tw. 1	"	4		
" Sulphate, Crystal	"	5		

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

526.

SATURDAY, JUNE 19, 1897.

Vol. XX.

Contents.

PAGE	PAGE
ics	409
in Duty on Bleaching	410
ist	411
Latest Complete Speci-	411
Exports for May	411
ture of Dynamite	412
Production of the	413
ites	413
otes	413
the Salt Trade	414
ducation and Manu-	415
panies	415
Trade Notes	416
Tar and Ammonia Products	416
Miscellaneous Chemical Market	417
Report on Manure Material	417
The Metal Markets	417
Liverpool Oil and Colour Market	417
Hull Paint, Oil, and Colour Report	417
West of Scotland Chemicals	417
Tyne Chemical Report	418
New Companies	418
Gazette Notices	418
Imports	418
Exports	421
Prices Current	424

ADVERTISEMENT.

TENDER.

CORPORATION OF COLNE.

(GAS DEPARTMENT.)

Gas Committee invite Tenders for the surplus made at the Gas-Works during the year ending March 25, 1898. quantity, 650 tons.

Proposed "Tender for Tar," to be delivered at the Office of the under- before Saturday, the 26th day of June, 1897.

H. V. SIMMONDS, C.E.,

Engineer and Manager.

Offices,
Lane, Colne, Lancs.

Notices.

Communications for the *Chemical Trade Journal* should be sent by Post Office Orders made payable to—
S BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, to the *Trade Journal*,—payable in advance,—including postage of the world, are as follows:—

ly (52 numbers)	12s. 6d.
Yearly (26 numbers)	6s. 6d.
terly (13 numbers)	3s. 6d.

Advertisements.

Advertisements of Situations Vacant, Premises on Sale or To be Let, and Wants, and Specific Articles for Sale by Private Contract are charged at the following rates:—

10 Words and under	2s.	01. per insertion.
Each additional 10 words	0s.	6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

10 Words and under	1s.	0d. per insertion.
Each additional 10 words	0s.	3d.

Advertisements, Announcements in the Directory Columns, and all Advertisements, are charged at the Tariff rates, which will be forwarded on request.

CURRENT TOPICS.

THE U.S.A. TARIFF.

THE new Tariff Bill of the United States is now practically settled, as far as the chemical trades are concerned, with the one exception of bleaching powder. Under the 1890 McKinley Bill a tax of 20% *ad valorem* was imposed, but since the Wilson Bill, four years later, it has been free, and the Dingley House Bill of 1897 proposed that it should remain so. The Senate, however, have subsequently proposed that a duty of one quarter cent per pound shall be imposed, and elsewhere in this issue a most interesting discussion on this matter will be found. There are several points in this debate that require consideration, as, whether bleach is taxed or left free, the opinions expressed reveal the plan of campaign for the future. If, as forecasted, the States are in a few years to produce their own bleach, the outlook for the new producers on this side (mainly electrolytic processes) is not too promising.

The tendency to protect electro-chemical products is also made manifest by the taxing of chlorates of potash and soda. Both these products were free even under the drastic McKinley Bill in 1890. In the present Bill, however, an impost of 3 cents per pound was first of all named, though this has since been reduced to 2 cents by the Senate.

In soda products, the chromates and caustic have not been quite raised to the old 1890 rate of taxation, though the Senate has put an extra quarter cent on to the House Bill provision for caustic. Silicate of soda goes back to where it was under the 1890 Bill, at half-a-cent per pound, an increase of one-eighth cent on the Wilson Bill. Soda ash and bicarbonate have to bear one eighth and quarter cent respectively, the additional eighth on ash having been the work of the Senate.

Prussiates of potash are better off than under the 1890 Bill, red prussiate by two cents and yellow by one. The Wilson rate was 25% *ad valorem*.

Nitrate of lead remains the same as under the Wilson Bill, at 1½ cents per pound, the Senate having knocked off the extra cent suggested in the House Bill. It is, therefore, 1½ cents to the good, as compared with the McKinley tariff. Lead acetates are also unaltered, the Senate having reduced the House Bill proposals by one cent on both white and brown.

Sulphate of ammonia has been fixed at three-tenths cent per pound, this being just about equal to the Wilson 20% *ad valorem* duty. The House Bill sought to impose a tax of half-a cent. Sulphuric acid goes back from being free to the 1890 rate of quarter cent per pound. Glycerine, crude and refined, are both unchanged at one and three cents per lb. respectively.

Though for the most part the changes of the Senate have been adverse to the development of British chemical

trade, in regard to certain products they have cancelled the proposals of the House Bill, embodying duties ranging from 25 to 40% *ad valorem*, and placed them back again on the Free List. This has been the case with benzoic, carbolic, oxalic, and salicylic acids, bromine, benzol, naphtha, and paraffin.

ANTITOXIN.

Last year, when reporting on the efficacy of antitoxin, the medical superintendents of the Metropolitan Asylums Board did not give an unreserved expression of opinion in favour of the serum, although they were perfectly willing to admit that it had effected a most satisfactory reduction in the percentage of mortality. This year, however, they speak with far less reservation, and in fact go so far as to indulge in actual praise.

The serum used was supplied by Dr. Sims Woodhead, from the laboratories of the Royal Colleges of Physicians and Surgeons. It was of greater strength and more uniform than that previously obtained, and the dosage could be more accurately regulated. The report lays great emphasis on the importance of early treatment, which extended experience shows to be the cardinal point. As a matter of fact a dose of 2,000 units will usually secure a result on the first day which 50,000 will not effect on the fourth. A considerable increase of complications was noticed, especially of albuminuria and paralysis, but the medical superintendents attach but little importance to it. Some of the increase is, no doubt, explained by the fact that many severe cases recover which would otherwise have ended fatally. In summarizing the year's work, the superintendents have arrived at the following conclusions concerning the advantages of antitoxin. In the first place it has effected a great reduction in the mortality of cases brought under treatment on the first three days of illness, as well as lowering the combined general mortality to a point below that of any former year. There is a still more remarkable reduction in the mortality of the laryngeal cases; and a uniform improvement in the results of tracheotomy at each separate hospital. To use their own words, the superintendents say—"We have only to add that we still hold to the opinion that in the antitoxic serum we possess a remedy of distinctly— we would now say much—greater value in the treatment of diphtheria than any other with which we are acquainted."

This is certainly a most encouraging report, and is sufficient to place the pseudo-chemical industry of producing the serum on a sound basis. The mortality in cases under five years of age has been heavy in the past year, so that there is more in the fact that the percentage mortality in *all* cases has been reduced from 22.5 to 20.8% than is apparent to the eye. In post-scarlatinal diphtheria the mortality has been reduced to 5%, as compared with an average of 50% for the five years previous to the introduction of antitoxic serum.

INVITATION OF THE SOCIETY OF CHEMICAL INDUSTRY TO NOTTINGHAM.—At the meeting of the Nottingham Town Council, on Monday, the Mayor moved that an invitation be given to the Society of Chemical Industry to hold their annual general meeting at Nottingham in 1898. The last occasion on which the society visited Nottingham was in the year 1890, and he believed that that was a record year. That meeting was the most successful that the society had had, and they were anticipating, if it was the Council's pleasure to invite them, that they would have an equally successful gathering. As a matter of fact, the expenditure upon the town would be very trifling, and the Council would agree that the money would be well laid out in securing the presence in the town of so large a society, devoted not only to chemical research and study, but to its application to manufactures. The motion was carried.

THE AMERICAN DUTY ON BLEACHING POWDER

IN our summary of the U.S.A. Tariff Bill which appeared in issue of the *Journal*, it was necessary to indicate the position of bleach in the Free List as doubtful, as, although it has figured even from the first drafting of the House Bill, it would seem that the Senate are half disposed to impose a duty of $\frac{1}{4}$ cent. per pound. The matter is still in abeyance, as the following interesting discussion in the Senate will show. Senator Gray in the course of a strong argument against the proposed duty said:—

Bleaching powder, or chloride of lime, is a material very extensively used. It is one of the most important and essential materials in the manufacture of paper and paper pulp. The pulp makers in the States, who make the raw material, so to speak, for the paper factories, depend entirely upon chloride of lime as a bleaching agent. It was free under the McKinley Act, and it is free under the new law.

It is pretty well known—I think I know it pretty well from observation—that the paper manufacturers of this country, through the tremendous development of their industry and the competition which has created, and for other reasons, are now in a very depressed state. They are making, I am told by those in my own State engaged in the business, and who ought to know, no profit at all, but are getting by the momentum of their great concerns, in order to keep them together and not have it scattered, hoping for better times. This would be a very cruel blow at the industry. It would be a burden which ought not to be called upon to bear, and I do not believe that any sufficient reason or any ground whatever, whether a matter of protection or free trade, why an industry employing thousands of labourers, and so essential to the civilization of the country, should be as that of paper making, should be burdened in this way.

I should like to hear why, at the very last moment, after it had been left free under the McKinley Act, free under the present free in the Bill as it came from the House, it should come before the Senate Committee with a tax interpolated, as it seems to be, in paragraph 7 $\frac{1}{2}$. In the first copy of the Bill, which I saw, it was not dutiable, but it was on the Free List in the printed version in my hand.

Senator Aldrich, defending the amendment, said:—

The United States consumes about £400,000 worth per annum of bleaching powder. It is practically supplied by one concern, the United Alkali Company of Great Britain. Although a manufactured product, it is upon the Free List. The fact that it is upon the Free List has allowed the United Alkali Company to monopolize the American markets. The essentials in making this product—carbon and lime—are found in the United States in a great measure, and in a great many places in juxtaposition.

Continuing, he contended that there was no climatic or other reason why bleaching powder should not be made in the United States. He proceeded to dwell upon the Kastner-Kellner process for its manufacture.

Senator Gray protested that the process by which bleaching powder could be produced in America was covered by patents.

In reply to this Senator Aldrich said:—The trouble with Senator's argument is that the patents are not owned by the people. The patents are not owned by the same people in Great Britain, Germany, Belgium, and the United States. The United States company, which undertakes to make by that process and use it, is obliged to compete to-day with the United Alkali Company, which controls the patents of Great Britain, and makes bleaching powder alone by this process, but by other processes, and they have labour and cheaper materials, cheaper salt and cheaper lime, and account of the difference in labour between the two countries.

So far as the paper makers and the pulp makers, who depend upon material very largely, are concerned, they are all, or substantially all, agreed that it would be a good thing to put bleaching powder on the dutiable list. They believe that with the result has been attained in the manufacture of soda ash, which is a somewhat analogous case, being made also from salt, the price of the product and the article in the United States will be reduced by the competition. I think it is absolutely safe to assume that within a few years we shall be making the entire amount of bleaching powder used in the United States, and it will be sold at a very much lower price than when it is all imported by one concern from Great Britain.

At the request of Senator Quay of Pennsylvania the amendment making bleaching powder dutiable at $\frac{1}{4}$ cent. per pound was passed over for the time being.

At the same time it is rather amusing to hear this worthy Senator waxing so eloquent over this state of "monopoly," when we are losing life as well as of money from the juggling of their Trust monopolists. If bleach is to be taxed, the trade should be open to all. The deadly 73° oil is vetoed in this country. One good turn deserves another.

The Patent List.

is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally on the value of Chemical Patents.

NOTIFICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in the Manufacture of Sugar. W. Powell. 13,357. May 31.
 Improvements in the Manufacture of Sugar. W. Powell. 13,358. May 31.
 Improvements in the Manufacture of Sugar. W. D. Scott-Moncrieff. 13,400. May 31.
 Improvements in the Manufacture of Liquids. H. McPhail. 13,429. May 31.
 Improvements in the Manufacture of Tanning. A. Hollins and J. Young. 13,459. June 1.
 Improvements in the Manufacture of Indigo Resist. J. Grassmann. 13,473. June 1.
 Improvements in the Manufacture of Barium Oxide and Hydroxide from Barium Carbonate. June 1.
 Improvements in the Manufacture of Chlorine from Halogen Salts in Solution, and transforming into an Oxidised Salt, and Producing Alkaline Sulphates. 13,550. June 1.
 Improvements in the Manufacture of Ammonium Bichromate. W. Majert. 13,551. June 1.
 Improvements in the Manufacture of Compound. W. Majert. 13,552. June 1.
 Improvements in the Manufacture of Ring Retorts. W. Young and J. Fyfe. 13,665. June 3.
 Improvements in the Manufacture of E. A. G. Street. 13,724. June 3.
 Improvements in the Manufacture of Chemical and Antimonial Ores. J. P. van de Ploeg. 13,739. June 3.
 Improvements in the Manufacture of Skins, etc. W. A. P., and W. Sagar, jun. 13,773. June 4.
 Improvements in the Manufacture of Pure. J. Kovacs. 13,811. June 4.
 Improvements in the Manufacture of Carbonic Acid Gas. H. Steinein and K. S. Murray. 13,825. June 4.
 Improvements in the Manufacture of Moisture. T. Melvin. 13,868. June 5.

NOTICES OF LATEST COMPLETE SPECIFICATIONS.

Abstracts are specially prepared for the Chemical Trade Journal, and are published by permission of the Patent Office. This is the earliest and most complete of Chemical and allied patents accessible to the public.

Improvements in the Process and Apparatus for the Removal of Sulphuretted Gases from Gas or Gaseous Mixtures. Dr. H. Strache, 4, Pointen-stra. XVII. Eng. Pat. 14,943. July 6, 1896.

It is used as a substitute for the usual purifying materials, and the equations are given, showing the various reactions in the decomposition of the H_2S and HNO_3 to form vitriol trioxide, and also in connection with the conversion of oxide into nitrous and nitric acids. The liberation of free H_2S by dilute nitric acid is also explained. There is one scrubber (or No. 2) nitric acid is passed; into No. 3 the products from both pass into No. 1. The gas, mixed in amount of air, on entering No. 1, therefore, meets a nitric and sulphuric acids, with a little nitrous acid, which bulk of the H_2S . Passing to No. 2 scrubber, the nitric the remainder, while the nitrogen oxides in the gas are removed by No. 3. The nitric acid in No. 1 being dilute, sulphur, while a certain amount passes away with the gas from the scrubber, and can be collected separately. The gas consists of the water resulting from the various reactions, a little sulphuric acid and undecomposed nitrous acid, deposited on the packing in No. 1 can be recovered by the drying.

Improvements in the Apparatus for Use as Precipitants in the Treatment of and other Polluted Waters. A. Angell, County Laboratory, Southampton, and F. Candy, 56, Nightingale-lane, Balham. Eng. Pat. 14,945. June 25, 1896.

Improvements in the Apparatus for Use as Precipitants in the Treatment of and other Polluted Waters. A. Angell, County Laboratory, Southampton, and F. Candy, 56, Nightingale-lane, Balham. Eng. Pat. 14,945. June 25, 1896.

Improvements in the Apparatus for Use as Precipitants in the Treatment of and other Polluted Waters. A. Angell, County Laboratory, Southampton, and F. Candy, 56, Nightingale-lane, Balham. Eng. Pat. 14,945. June 25, 1896.

Improvements in the Manufacture of White Lead. H. C. Webster, 38, McAlpine-street, Glasgow, and R. Crawford, foreman of Messrs. Alexander, Ferguson, and Co., Ltd. Eng. Pat. 14,428. June 30, 1896.

It is proposed to substitute lead pots for the earthenware vessels usually used in the Dutch process for white lead making. The pots may be similar in shape to the earthenware ones, or tray-shaped, with or without partitions. Lead stars or grids are arranged on the leaden receptacles for the acetic acid just in the same way as when the old pots are used. The leaden pots may be of varying thickness, but one-eighth of an inch has been found convenient in practice.

Improvements in the Manufacture of Materials for Use in the Filtration and Purification of Impure Water and other Liquids. A. Angell, County Laboratory, Southampton, and F. Candy, 56, Nightingale-lane, Balham. Eng. Pat. 14,425. June 25, 1896.

The dust from the granulation of the porous substances prepared under patents 13,818 of 1884, 15,948 of 1895, and 1,793 of 1886, is mixed with manganese and clay in varying proportions, and the whole bound together with tar or treacle, and moulded into blocks. These blocks are heated in a kiln to render them sufficiently hard to withstand wear and tear in the filter beds when granulated.

Improvement in the Manufacture of White Lead. A. H. Sandiland, 137, Southgate-road, Hackney, London. Eng. Pat. 10,462. May 15, 1896.

In the preparation of white lead by the Dutch process, a certain amount of lead acetate is formed, which is dissolved out when the hydrated carbonate is washed. To prevent this loss of lead it is proposed to add an alkaline carbonate or hydrate to the wash water (7 ozs. to every 20 galls. of water has been found a convenient proportion), whereby the acetate is decomposed and lead carbonate precipitated. In this way it is claimed that there is a gain of 5 tons for every 1,000 tons produced.

IMPORTS AND EXPORTS FOR MAY.

THE Board of Trade returns for last month are more encouraging, in the imports chemicals, especially nitrate of soda, are higher in value. Oils are less. The falling off in metals is chiefly due to the decrease in tin, quicksilver, and copper. In the exports salt is lower, but there is a decided improvement in the shipments of alkali, notably to America, Germany, Russia and Spain.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1896.	1897.
Margarine	61,521 Cwt.	75,281
Copper Ore and Regulus	9,549 Tons.	9,203
Pyrites	49,343 "	52,423
Tin	62,871 Cwt.	34,654
Alkali	18,134 "	25,343
Brimstone	77,185 "	40,590
Dyes, Coal Tar	59,410 £.	57,592
Saltpetre	41,254 Cwt.	38,672
Petroleum	11,467,310 Gall.	13,414,437
Turpentine	11,764 Cwt.	1,526
Guano	590 Tons.	2,112
Nitrate of Soda	8,750 "	19,393
Paraffin	38,984 "	49,071
Rosin	62,202 Cwt.	74,516
Tallow and Stearine	171,902 "	175,281
Oil Seed Cake	25,612 Tons.	35,115
Wood Pulp	29,304 "	34,318

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1896.	1897.
Alkali	374,564 Cwt.	501,695
Cement ..	34,527 Tons.	41,038
Coal and Coke ..	3,107,896 "	3,502,240
Copper, all kinds ..	91,907 Cwt.	80,495
Iron and Steel ..	304,048 Tons.	343,515
Chemical Manures ..	21,281 "	23,670
Oils, seed ..	5,349 "	5,490
Salt	93,846 "	81,458

THE PULSOMETER ENGINEERING CO.—This firm is exhibiting a selection of their Pulsometer Deane and Duplex pumps, filters, etc., at the Royal Agricultural Show next week. Their stand is No. 78, and the Pulsometer pumps and torrent filter will be at work.

THE MANUFACTURE OF DYNAMITE.

UNDER the general term dynamite are included two classes of mixtures. The first of these consists of nitroglycerol, held by an absorbing medium, such as woodpulp or kieselguhr, together with various other bodies used as fillers, the principle one being sodium nitrate; this latter body also adds to the strength of the dynamite when woodpulp is the absorbent used by furnishing oxygen for the combustion. The second class, more properly called gelatin dynamites, consists of nitroglycerol gelatinised by means of nitrated cellulose, much the same substances being present as fillers, but considerable less absorbing material in proportion to the amount of nitroglycerol. It is to the former class of mixtures that this paper relates, although most of it is equally applicable to the latter. Most of the dynamite used in America is of the first class, as it is less costly and equally serviceable, except in wet holes.

CHOOSING A SITE.

The choosing of a site for a dynamite factory is a matter into which many factors enter. It is much more convenient, cheaper, and safer to have the part of the plant used in making the nitroglycerol on a hillside, as it is then possible to allow that liquid to flow from building to building in pipe lines. Authorities usually hold that the soil should not be sandy on account of the danger from sand blowing into the buildings and finally giving rise to friction in some part of the apparatus. The danger from this source is very small, as can be seen from the fact that one factory (the only one known to the author on such soil) has been located for about fifteen years on a sandy hillside without having an accident which could be traced to this cause. The only precautions taken are to carefully clean everything after each day's work, which must be done anyway, and the sweeping out of the sand occasionally as it accumulates before the doors. The sandy soil probably plays a very important part in another direction, for though the most violent thunder storms sweep over the region during many months of the year, there has never been a building struck by lightning. No lightning protectors whatever are used. The explanation of this fact seems to be that the light buildings, with their very light foundations, are much poorer conductors of electricity than the surrounding trees, the roots of which extend into the moist earth below. Another advantage is that the shock of the most violent explosion is not conducted to great distances, as is the case in other soils. In the factory before mentioned a catch box for the nitroglycerol, carried away in the wash waters, in which about one hundred and fifty pounds of that explosive had accumulated (contrary to orders) exploded. It was situated not more than one hundred feet from the storehouse, in which was considerable nitroglycerol at the time, but this did not explode, although the flying debris damaged the building badly.

THE MANUFACTURE OF NITROGLYCEROL.

This is the most important point to be considered in connection with the manufacture of dynamite, and the different parts of the process will be taken up in the order in which they occur.

The nitration is best conducted in a nitrator of cylindrical shape and made of lead with a bottom sloping slightly towards the point at which the funnel for drawing off the mixture of nitroglycerol and acids is placed. The top is made of lead and has several panes of glass set in it, through which the workman watches the operation. From the centre a ventilator of lead passes up through the roof. Two thermometers are fixed, one with the bulb near the surface of the liquid, and the other with it in the lower strata. These are in front of the operator at work, and guide him. The glycerol valve is controlled with the left hand, and the compressed air for agitating with the right.

The method of mixing by compressed air is beyond doubt the safest, as it gives a more thorough mixing, allows more than one cooling coil to be used, and is less liable to get out of order. A drawback, common to all mechanical agitators, is the unreliability of any piece of machinery exposed to the acid fumes which are always present in and near the nitrating house. The air after leaving the compressor should be passed through an iron drum containing sulphuric acid, and arranged in the same manner as the ordinary bottle for washing gases in the laboratory, in order that any moisture it may contain may be removed.

Everything being in order and tested as far as possible, the operator sets the lead trough (which connects the discharging faucet with either the separator, or drowning tank), to connect with the drowning tank, starts the water running into the tank so as to give some circulation and consequent stirring, in case it becomes necessary to drown the charge, and allows the mixed acids to run into the nitrator from a small tank, into which just enough for one charge has previously been forced from the acid store tank outside the danger area by means of a moutejus and compressed air. The cooling coils furnish enough water to keep up a circulation in the drowning tank when allowed to discharge into it. About 1,500 pounds of mixed acid is found to be an economical charge, and to this should be added from 210 to 230 pounds of glycerol, according to the conditions. It is economical to increase the glycerol used, even though the percentage yield decreases, as long as a pound of glycerol adds a pound to the yield of nitroglycerol. The acids used should have the following composition: Sulphuric acid,

61.9%; nitric acid, 34.5%; oxides of nitrogen, calculated as nitrotrioxide, 0.7%, with not more than a trace of chlorine and iron. The glycerol must have approximately the following composition: A trace; carbonaceous residue, 0.012%; sodium chloride, 0.002%; acid equivalent, 0.05347; permanent specific gravity, 1.265; specific gravity, 1.2634; higher fatty acids, none; reaction, neutral. During the process of nitration the temperature should not be allowed to go above 88°F. The yield by this method is greater the shorter the time employed in the process, so that in the winter, when a run can be made in one-half an hour or less, fifteen or twenty pounds more of glycerol can be used without decreasing the percentage yield. This is partly due to the fact that the shorter the time the less nitric acid is blown out of the mixture in agitating. No economical method has been devised for recovering the acid thus lost, or for reducing the temperature during the summer to the point easily obtainable in the American climate during the winter months.

Separating.—The nitration being finished, the trough is placed so that the mixture can flow into the separating boxes, which transfer ought not to take over three minutes. It is usually held that the separators should be in another building, but many factories in America have them in the same one with the nitrator. By this method only one drowning tank is required, while if the buildings are far enough apart for one to escape injury from an explosion in the other, two must be provided. It also avoids the trouble which would otherwise be caused by passing the mixture of acids and nitroglycerol through a long trough.

It is almost impossible to avoid some of the mixture remaining in the hollows of the trough, and this in a few hours, especially during the summer, becomes dangerous.

While an explosion would not necessarily be communicated to either building, it must at least injure the line and delay work. No way would be at hand of disposing of the run then in the nitrator, except by drowning, with the consequent loss of the spent acids. The disadvantage is that an explosion destroys more apparatus and material. The danger in a building containing the separators and nitrator is not increased to any extent, as both operations, when properly conducted, give ample warning before an explosion. The building must, of course, be arranged with several exits.

Two men working with two separators and a nitrator can easily dispose of twelve runs in a working day of ten hours, which means 5,500 pounds of nitroglycerol. If it is necessary to make more, such a plant can be forced to fourteen or fifteen runs a day, under favourable conditions, by working a little overtime. If still more nitroglycerol be required, it is best to build another similar plant, far enough removed from the first to avoid danger. This latter plan also has the advantage that a single explosion does not entirely stop the production, which is a thing greatly to be desired, as anyone familiar with the demands of trade for the rapid filling of orders will appreciate.

The separators should be cylindrical lead boxes, containing both cooling coils and an arrangement for agitating with air, the latter for use only in emergencies. The bottom is made slightly sloping towards the point where the cock for drawing off both acids and nitroglycerol is placed. The top should be covered with lead, and have glass windows for viewing the fumes given off during the operation. It is necessary to have a narrow pane of glass in the side next to the cock, by means of which the operator is enabled to see when all the acids have been drawn off, and interrupt the flow before any of the nitroglycerol goes into the second separator. The spent acids having been disposed of, a short lead trough is then set so that the nitroglycerol can flow in a thin sheet into a small tank half filled with water, and connected with the wash-house. A stream of water, sufficient to keep the liquid in this tank at a constant level, is turned on at the same time. The nitroglycerol flows from here into the wash-tank in the wash-house, the stream of water being kept up till the nitroglycerol is drowned, and a sufficient quantity of water passed through the pipe line to clean out the last traces.

The wash-tanks should be made of wood, and lined with lead. The agitation is best done with compressed air. Two faucets are set in each of these tanks, one at the bottom for drawing off the nitroglycerol at the end of the washing, and one above the surface of the explosive through which the wash-waters escape. An alkaline wash must always be used at least once, and the nitroglycerol tested with litmus paper before it is allowed to go to the storehouse. The disposal of the wash-waters is a problem which every manager must solve for himself according to conditions at hand, but it will effect quite a saving if they are allowed to flow through a series of compartments in which the little nitroglycerol left in them has a chance to settle out. The nitroglycerol should be removed from these compartments at least once a week. The lead lining to the wash-tanks should be insisted upon, as otherwise the fibres of the wood are opened by the action of the acid and alkali, and become saturated with nitroglycerol, making the repairing or destruction of the tanks dangerous. The author has traced at least one explosion to this cause.

(To be continued.)

MINERAL PRODUCTION OF THE UNITED STATES.

Early issue this year (No. 506) we gave a summary of the mineral production of the United States in 1896, based on the figures supplied by the *Engineering and Mining Journal*. It should be noted that the returns compiled by our estimable contemporary are given, as preference is given by our own Government to the figures supplied by this Journal rather than to the official figures of the United States Government. In the summary that was given in January of the returns were incomplete, or the totals partially so, we, therefore, now cull the following items, which give revised totals and some additional details:—

Carborundum.—Under this head are included a number of substances, which show comparatively small changes. Carborundum increases; its use is extending in different quarters as it becomes better known, and the manufacturers of this artificial abrasive are arranging to extend their output. Corundum comes chiefly from Carolina and Georgia, and shows a small decrease. The emery increased slightly, but we are still largely dependent on imported supplies of this article. The supply of tripoli and earth continues to come mainly from the Missouri deposits, Florida being still undeveloped. In grindstones, millstones, and stones there were no important changes. The demand for them has been largely reduced in recent years by the use of processes for making flour from grain.

Flour.—There was a decrease of 40,200 short tons, or 34% in the production, the result of a lessened demand from the manufacturers of this article.

Bauxite.—The production of bauxite, 17,096 tons, was entirely from a mines, and shows a decrease.

Graphite.—There was an increase of 1,751,658 pounds in the production; the greater part now comes from the mines in Southern Nevada, the Nevada mines being worked only to a limited extent. Graphite is still in the hands of a single producer, the Pacific Coast Graphite Company, which in 1896 consolidated with the Redwood Works of Great Britain. The consolidated company controls the borax output of the world.

Sulphate.—The production was about the same in 1896 as in 1895. The exports of this material are considerable, and the demand is well maintained.

Ore.—The out-put, which comes entirely from the California mines, is only about one-fourth of that reported in 1895. The supplies of chrome ore for Eastern manufacturers continue to come from abroad.

Mica.—The production in 1896 included 8,000 pounds of sheet mica and 100 pounds of ground mica. This comes chiefly from the mines in Maine and New Hampshire. The production does not meet the demand, which is increasing, especially for electrical work.

Wool.—The production last year was 5,953 tons, showing a decrease of 15%.

Lead.—The out-put, which was stimulated largely in 1895 by the demand for the mineral, amounted in that year to 1,900,000 lbs. In 1896 it fell off to 17,500 pounds.

Gas.—There was a decrease in value of this product, owing to the exhaustion of the supplies in certain districts.

Mineral paints.—In mineral paints, chiefly the iron oxide paints, there was a small increase, the total in 1896 being 54,153 short tons. Of these only 90 tons were reported. The production of white lead reached 95,068 tons in 1896, or 2,129 tons more than in 1895. On the other hand, decreased in production, the 6,799 tons reported being less than that for 1895 by 5,891 tons. It may be noted that most of the zinc white is made directly from zinc, and not from metal like white lead.

Sulphur.—The total production, chiefly from the mines of Virginia and North Carolina, was 117,782 long tons, an increase of 10,051 tons. Perhaps, less than might have been expected in view of the use of sulphur, which would naturally lead to an increased use in vitriol making.

Salt.—The total out-put in 1896 was 13,354,573 barrels (of 280 lbs.) 11,156,270 barrels being salt obtained from brine by evaporation, and 2,198,303 barrels rock salt. There was a slight decrease in the production of manufactured soda in 1896 was 158,975 tons, or 8,025 tons less than in 1895. This was due entirely to the recession of business and consequent decreased demand. The production of natural soda from Wyoming—3,000 tons—continues to be the remoteness and difficulty of access of the deposits.

Soda.—A small production—2,800 tons—is reported from Utah. The mines in the latter State were worked only to a limited extent and irregularly. The higher price of Sicilian soda would aid to develop the industry, and arrangements are in progress to work the Texas deposits, which are believed to be of considerable extent and value.

MOTOR CAR NOTES.

[SPECIALLY CONTRIBUTED.]

THE competition for motor cars designed for heavy traffic and transport purposes, which was held at Crewe last week, in connection with the Royal Agricultural Society, was not a great success. Out of the three entries only one motor van actually ran.

It seems that a number of those who intended to compete are but as yet building experimental cars, and are, therefore, not prepared to make known the details that are demanded from competitors.

The only competing van was that made by the Lancashire Steam Motor Co., of Leyland. The following are a few particulars concerning this motor van:—It is a rear driven 4-wheel vehicle, built upon a steel frame. It is fitted with a vertical compound engine of the marine type supplied with steam from a vertical multitubular boiler. The boiler, which is oil fired, is of steel, and has 84 copper tubes of a special make, and a copper fire box, having a total heating surface of 50 square feet. Both the boiler and oil firing arrangements are made under special patents. The connection to the engine is by a steam dome, which is so placed that the steam is thoroughly dried, therefore priming is absolutely prevented.

The crank shaft, which revolves in one direction only, is connected with the second motion shaft on which suitable clutch gearing is fixed by four changes of speed—viz., "high," "intermediate," "slow," and "reverse." The second motion shaft transmits the power to the third motion shaft on which the driving chain pinions are fixed and also the compensating gear. The gearing being of tough gun metal with machine-cut teeth is exceedingly powerful. The power is applied to the road wheels by means of powerful pitch chains, the chains being kept taut by means of radius rods.

The whole arrangement of boiler, engine, and gearing is so placed that the weight on the driving wheels when empty is about half the weight of the van, and as all the additional weight when loaded comes on to the drivers a proportionately better grip is obtained. By this means the weight on the steering wheels is kept constant. The body of the van, which is of great capacity and occupies the rear portion, is separated from the boiler by a partition, which does not restrict the rear view of the driver. The van is roofed with sheet metal. The condenser, which consists of a number of brass tubes indented under the "Rowe" process, is supported above it. The metal roof is arranged so that any rainfall may be carried to the storage tank and used as feed water. Both cylinders of the engine may be worked high pressure when necessary. The regulating lever, after shutting off steam also applies the brake. The clutch levers, etc., are all within easy reach of the driver, who therefore has everything under his immediate control.

The judges were Sir William Anderson (of Erith, Kent), Bryan Donkin, Esq. (of London), and F. W. Webb, Esq. (of Crewe). The van was followed, in traps and on bicycles, by a goodly smattering of people interested in the trial, which resolved itself into a run to Congleton and back.

The first three miles were accomplished under 30 minutes. At Wheelock Canal bridge there was a remarkably sharp hill, which was taken with only a reasonable slackening of the speed. Sandbach was reached under the hour. On the average 6½ miles per hour were made with a load of 12 cwt., in addition to the weight of the vehicle. At times there was some smell and smoke from the partial combustion of the oil, which would be likely to be considered a breach of the Board of Trade regulations regarding the emission of steam and visible vapours. The ease with which repeated starts and stoppages could be made showed, however, that steam raised by liquid fuel was a step in the right direction for vans of this class. In hill climbing the advantages of steam were also manifest. Though none but a hopeless enthusiast could fail to see points in which improvements are necessary, the trial must be admitted on the other hand to have been an earnest of better things ere long, and the down-trodden agriculturist, if he is the suffering creature he makes himself out to be, will do well to encourage these early attempts, and refrain from scoffing too much, lest another helper is disheartened by his apathy and disbelief.

THE PURIFICATION OF LANCASHIRE RIVERS.—At the last monthly meeting of the Ribble Joint Committee, at Preston, the chairman (Sir J. T. Hibbert) spoke of the good results that had been attained in connection with the work of the committee during the past five years. There were now 68 manufacturers whose works were under the jurisdiction of the committee, compared with 56 in 1892, and four works without purification schemes, compared with 37 in 1892. He referred to the report of the chief inspector (Mr. William Naylor), who said that most of the authorities and manufacturers, speaking generally, had now got purification plant sufficient for their needs. This was only half the battle, the plant sufficing only if maintained in condition. Much careful inspection would be required to make a permanent and visible effect upon the rivers, and the committee would have to take prompt action in cases of default.

A REVIEW OF THE SALT TRADE.

In the report of the Salt Chamber of Commerce for the last three years an interesting review of the salt industry is given, which is of considerable use on account of the comparatively long period over which the review extends.

MANUFACTURE.

In summarising the general position of the industry it is stated that in the production of the United Kingdom there has been little change, except some re-adjustment to topographical and other economic advantages. These changes are visible in the trade statistics which follow. All the salt districts of the country, especially the most advantageous, have been developed far in excess of either their prospective local or foreign demand. The natural result has ensued: prices no longer offer any inducement to the enterprise of increasing the production.

Germany, having a few years ago reached the limits of her own consumption, has been pushing salt into the markets of contiguous countries, and with less success into more remote parts of the world. Her strength lies in the facilities and cheapness of her inland navigation and ports of shipment.

In the United States the inflation of native production caused by the inclination of English manufacturers in 1889 and 1890 has been partially corrected, but reports still show considerable struggle between the chief districts producing in excess of demand.

The Red Sea has provided more salt for India. It is of inferior quality, but, like the Hamburg article, is mixed with English salt, and goes into consumption at a lower price. When Eastern freight, and consequently the price of English salt, is at a normal level, the markets of these lower grades are limited. The Indian Government has powers under Adulteration Acts to restrain this mixture, but has not yet seen fit to exercise them.

THE TRADE OF THE WORLD.

The following is a more detailed review of the movements of the salt trade in the chief countries:—

Europe.—The shipments coastwise of the United Kingdom for the last five years have been:—

1892	1893	1894	1895	1896
302,821	319,975	324,792	356,279	373,616

The increase is largely due to the topographical advantages possessed by salt works on the seaboard.

The total tonnage shipped to other countries of Europe has been:—

1892	1893	1894	1895	1896
125,148	154,640	148,797	159,782	149,859

These figures, with allowance for variation of stocks, show an almost stationary condition, and are probably the minima at which the movements of ships requiring ballast will maintain this trade in the existing state of Continental tariffs. The day will doubtless come when the more enlightened peoples will demand this necessary of life free of duty, and will not allow inferior salts to be forced down their throats by prohibition of better.

The Scandinavian countries are slow to learn that English salt is superior to the solar salts of Southern Europe for fish curing; but there is much satisfaction in the fact that the Scotch herring thereby commands better prices and wider markets. The Scotch fish-curers have long been wise enough to appreciate the difference.

Italy actually carried its prohibition of imported salt so far as to revive an almost obsolete Customs' rule, which prevented a ship even entering an Italian port with a part cargo of salt to discharge other cargo. This amenity of modern commerce was witnessed in the famous old port of Genoa, and was reported by the British Consul. The steamer was sent away to discharge the salt before being permitted to enter. The matter has been taken up by the Board of Trade.

British North America.—This trade has remained stationary for several years.

United States.—There was an improvement in the tonnages of 1894 and 1895, due partly to the return of English makers to reasonable prices and partly to the healthy re-adjustment of business since the abolition of the duty, a re-adjustment which cannot fail to be of advantage to consumers in the U.S.A. and to stimulate new industries there. The decline in 1896 shipments is due partly to excessive shipments in 1895 and partly to the great disturbance of all business by the Presidential election.

The "Act to reduce Taxation" was passed on August 27th, 1894. A virtual impost on the better sorts of salt still exists in the form of a duty on the sacks containing it, and this very injurious charge upon the large industry of meat-packing should be removed for the mutual benefit of the States and the nations which consume these food supplies.

Central and South America.—There was an increase in 1894, and a further and very considerable one in 1895, and again in 1896, carrying the tonnage beyond anything attained in the last ten years.

In this market English makers should take a larger place. The

Spanish solar salts are certainly, through the method of their production, inferior. The difficulty of distribution can doubtless be further come by the superiority of the article being made more largely. The importation of salt into Peru was prohibited in July, 1896, duty imposed on native salt to provide war indemnity.

Africa.—This trade has been almost a constant one for ten years and that notwithstanding the vast fluctuations and advances of the great continent, and not withstanding great reductions in the salt. The majority of the shipments have always been to the Coast, and more particularly to the Royal Niger Territory. The inclusion is irresistible, and is being urged by many commercial nations, that some reform of the Chartered Companies and their is imperative if the new markets are to be of service to English factors generally.

India.—The Calcutta market has been characterised by more its usual irregularity of supply and prices. The transition from steam should have rendered both more regular, and thus have the trade more completely for English salt. But the large quantity of railway metal and other goods in 1896 absorbed the available room and interfered with steady supply. Happily the same operated elsewhere also, and thus the tonnage shipped from G in 1896 is one of the smallest on record. Prices rose rapidly in Autumn of 1896 as the visible supply declined. The inferior salt entered more freely, but will doubtless retire now that English exports are returning to a normal figure and freights are becoming reasonable.

The Government of India might much improve the supply important necessary to the vast population of India by removing cumbersome regulations as to warehousing and labour at the golahs. Firstly, cargoes may not be mixed in the same golah; minimum rent is charged for space; thus a large amount of rent for empty space pending the final clearance of a golah. Secondly, there is often great delay on the part of Government in the delivering salt from golah. The practice of the Government respects tends unintentionally to produce alternate plethora and

Adulteration is rife in India. A portion of English salt, often mixed with inferior and often deleterious salt, and the mixture at lower prices as English salt. Government would obviously real benefit upon the poor in India, who cannot take action to themselves, by enforcing the Adulteration Acts and stopping such immense sums are spent by the Treasury in prosecuting people who use the natural earth salts; a few prosecutions directed against probably not less injurious may fairly be expected by the poor.

The curing of meat and fish in Bengal is gravely hindered by duty on salt. This restriction upon a valuable stock of food is the further attention of Government, especially in view of the In the Presidencies of Madras and Bombay a more enlightened has for some time relaxed the duty upon salt used for curing. efforts to obtain the same advantage for the natives in Bengal favourably received by the Government of Bengal; to our great its strong recommendations were summarily rejected by the Gov of India. In view of the present famine, it is to be hoped the authority may reconsider this injurious decision at an early date.

In Madras the native manufacture continues. In Orissa the products have been largely replaced by the better imported salt is partly due to the facilities recently granted by the Government for inland bonding, and is clearly to the advantage of the population.

Reduction of the duty upon salt has been referred to in the Commons whenever the Indian Budget has been discussed, but present state of Indian finances no change has been thought possible.

Some of the development of Indian Railways urged by the I (H. E. Falk, Esq.) on his visits to India, is now proceeding effect on the better distribution of salt and all other commodities will be highly beneficial, and some increase of consumption result. This has already been the case through the additional communications opened up in the regions to the North East of India.

Burma.—The trade with this region has not advanced since indeed in 1896 the shipments were less than those in 1895 through the absorption of freight room by more costly products; there is evidence of the early completion of railways communications with the fertile and populous districts of the interior. The view by this Chamber thirty years ago, when Captain Sprye delineated routes for communication between Rangoon and Western China being actively urged. The prompt extension of the Mandalay to Kunlon Ferry has been pressed by the Liverpool Chamber of Commerce, which has also again brought into prominence the orandum and Maps of Captain Williams, Inspector of Public upon Captain Sprye's Routes (printed for the House of Commons in 1865). The Leeds Chamber circulated Mr. Holt S. Haller's report the relative advantages of the Kunlon ferry and railways to Szumao, and memorialised the Foreign Office in favour of railway from Rangoon or Moumein to Szumao. The opening of Shan States and Yunnan is no longer a matter of any doubt.

is already accomplished, as shown by various communications Foreign Office, which have obtained wide publication.

In view of the opening made by the war with Japan for special efforts were made by the Chamber and its chief to arrange the introduction of English salt into China, and a qualified representative, a member of the Chamber, visited Sir Robert Hart and Sir N. O'Connor gave all possible aid and information, and the most grateful recognition is due to the intimate relation between native production and the Revenue renders the question very difficult, as this Chamber has experienced. But there is reason to think that ultimately as well as the industrial needs of the Chinese Empire to the admission of English salt, subject to a duty.

Asia.—The figures of recent years exhibit much irregularity, of 1894 being an abnormally large one, that of 1895 much and 1896 rallying again. This is due partly to the fickleness of the market at convenient ports, and partly to the competition in a large part of the Continent of native salt and of foreign salt, which by the aid of the Australian Customs obtained a preference in Tariff. That even in the region of competition English salt commands a preference, notwithstanding the cost of ocean transit freights, will, however, always place the majority of the within as easy reach as the site of native manufacture.

For the Government of New South Wales was addressed a paper on the virtual preference in Tariff accorded to crushed salt shipped to compete with the superior English salt from brine. No redress was obtained, but this article, as in 1896, fallen into a very small and secondary place in the market. In 1896, the duty has been abolished.

TECHNICAL EDUCATION AND MANUFACTURERS.

Technical Education Conference, held in London this week, upon "The teaching of chemistry," by Professor G. Lunge, was read by Sir H. Trueman Wood. The writer held that English chemical industry to the foremost rank (a position disputed to it at present in several important branches), it is necessary that the technical management of chemical factories be left in the hands of "rule-of-thumb" men, but should be to real chemists. These men should have a much fuller training than the majority of chemists seem to obtain at present in Britain, which meant that they must spend more time and money in training than they generally did.

He says the student should receive a thorough training in scientific method, taking this in its widest meaning, not merely as a "testing."

Next to this, but not to the same extent, he should be taught physics, mineralogy, technology, mechanics, and the elements of engineering. Everything else was more ornamental than useful; a student should not confine himself only to the latter.

Whether foremen or even the common workmen should possess knowledge of chemistry and technology, such as may be taught at Board Schools or at night classes for adults, Professor Wood is afraid that such knowledge was quite useless to ordinary workmen, who had simply to do as they were told, and who might do more harm than good by trying to apply a superficial idea of the operations which they had to perform, without possibly gaining real insight into them. He did not even think that, apart from a few exceptions, such knowledge was much good to the foreman, whose duty it was to carry out their instructions and to see that they did their work as prescribed by the staff, but who were not to interfere with the chemical process itself.

He said a great waste of time and means to give some superficial technical teaching to tens of thousands of workmen on the remote chance that one of them might have some real benefit of it, while at the same time many hundreds of educated men were receiving a really valuable training in the same direction, many of whom could not find remunerated places owing to a great extent to the cheapness of "bottle-washers."

ACCIDENT AT A CHEMICAL WORKS.—About eleven o'clock on Monday an explosion occurred at Hamor Lockwood's chemical works, Bradford, Manchester. A still, containing about 30 tons of oil, exploded, lifting it from the brickwork in which it was embedded, throwing it a distance of about 50 feet. The oil ignited, and set on fire several adjoining oil and pitch tanks. A number of jets attached to the street mains by the fire brigade, and after a hour's work the fire was extinguished. Two of the workmen, named Duddle and Thomas Horrocks, were discovered dead, having been seriously burnt.

Reports of Companies.

THE NATIVE GUANO CO., LTD.

THE annual meeting of shareholders in the Native Guano Company, Limited (A B C Process), was held this week at the Cannon-street Hotel, E.C., the Hon. W. F. B. Massey Mainwaring in the chair.

The Chairman said: Since we met last an addition has been made to your Board at the request of the shareholders at the last meeting, and the gentleman elected is Mr. Trevel, who is present to-day and will have the pleasure of seconding this motion. The company has been at Kingston as prosperous as ever—in fact, a great deal more than prosperous; for whereas in the whole of last year we made a profit of £623., we have made a profit up to the present time of £545. That has been arrived at by a series of economies and inventions made by some of the members of your board and also by the members of your staff. The Kingston authorities have shown that they have even greater confidence in our process than they had before, for they have entered into a new contract with us. Formerly the night sewage was accumulated in the sewer, and if there was a large amount it was bound to overflow into the river. That was a very unsatisfactory state of things, though not in any way the fault of your company, because we were carrying out our contract by dealing with sewage by day and allowing it to accumulate by night. The Thames Conservancy served the Kingston authorities with a notice that that occasional overflow of sewage into the Thames should be stopped, and therefore it entered into negotiations with us as to the treatment of that night sewage. After very lengthy negotiations a contract was arrived at, and we are now treating both the night and the day sewage. That shows that, at any rate, the Kingston authorities are satisfied with the treatment of their sewage by the Native Guano Company's A B C process. Still, at Aylesbury, our offer to treat the sewage of the town for £800. a year was not accepted. I should like the Aylesbury people to know what they owe the gentleman who opposes us. They owe him this, that whereas we would have carried out this contract and given a money guarantee that we would carry it out, for £800., it has and will cost the ratepayers £2,800. a year, which means at least a rate of 8d. in the pound. At present most of the towns are, I believe, in a fool's paradise. They have got the idea that their sewage can be treated for nothing. Somebody has started a new idea called the Septic system, whereby the whole sewage of a town is to be swallowed up by the omnivorous microbe. Dr. Voelcker, one of the most eminent chemists, reporting on samples of effluent from the experimental tanks at Yeovil and Exeter, says:—"The Septic process has accomplished practically no improvement in the raw sewage, and the result is that an effluent which is, chemically speaking, as bad as the liquid portion of the original sewage, is sent out. My analyses and examination of the particular samples submitted to me lead to but one conclusion, namely, that the Septic process has entirely failed to produce either the purification of raw sewage or to send out such an effluent as could be properly discharged into a stream." Mr. Binnie, engineer to the London County Council, has expressed grave doubts as to the practicability of purifying sewage on a large scale by bacteriological filtration—"that is the scientific name for sewage being devoured by microbes. So far as we are concerned, we are still proving that we are the only system that can deal successfully with sewage in the middle of a town, and also make out of that sewage a manure that is saleable at £3. 10s. a ton. Up to June of this year we had 2,282 orders for 1,750 tons of manure, and last year we sold 1,653 tons; so that we have sold up to now over 100 tons more than we did last year. That is highly satisfactory, when you remember that when we first went to Kingston we only sold 494 tons. Our enemies say that the manure does not come out of the sewage, and that the Native Guano Company puts things into it. I refute that statement, and say that what is in our manure is nothing but what we take out of the sewage. We add nothing to it. It is the result of the A B C process. We have always had bitter enemies—I do not know why; the only reason I can get at is that our process does not show any large scope for engineering fees. Now, we were obliged to make a call last year on a certain number of shareholders. The reason for this was that the year before the sales of manure had been limited, as they were limited with every other manufactory of manure, in consequence of the great drought. Practically, however, that call is intact at the present moment. We are always carrying on negotiations with towns where we see them in a difficulty. I think that people will soon see that this microbe idea is all in the imagination, and that you cannot deal with large bodies of sewage under that system. The report was adopted.

LAUTARO NITRATE CO., LTD.

The report of the directors for the year ended December 31 last states that, after writing off all expenses of maintenance and renewals as here-

tofore, and allowing for depreciation of grounds, plant, &c. (the appropriation for debenture service having already been made for 1896 in the accounts for 1895), the net profit is £60,809., to which is to be added the amount brought forward from 1895, £3,541., making together £64,350. An interim dividend at the rate of 10 per cent. per annum was paid on January 4, and the directors now recommend a final dividend at the same rate, or 5s. per share, free of income-tax, payable on June 25. There will remain a balance of £9,350., and the directors propose to increase the reserve by a further amount of £5,000., and to carry forward £4,350. The past year, contrary to general expectation, was an exceptionally disappointing one to the nitrate trade. Almost all fertilizers have undergone a great depression in price, but nitrate has touched the lowest point on record. This is, however, not due to any marked decrease in consumption, as the figures of the last two years are the best in the history of the trade.

PACCHA AND JAZPAMPA NITRATE COMPANY, LTD.

The report for 1896 states that the profit and loss account shows a net loss of £541. A further sum of £1,219. has been debited to same for extensions and improvements at Oficina Jazpampa, also £2,506. 12s. 9d. to cover the loss by depreciation in value of loose plant, &c., at the oficinas, thereby increasing the adverse balance brought forward from 1895 to £19,584., which amount it is proposed to carry to the next account. The directors attribute this unfavourable result to the low prices which continue to rule, to a high cost of production, the limited output to which the company has been restricted, and to the expense involved through the consequent stoppage of the company's oficinas during the greater part of the year.

MESSRS. H. H. VIVIAN AND COMPANY.

An extraordinary meeting will be held at the offices of the company, 9, Queen-street Place, Cannon-street, London, on the 14th inst., for the purpose of passing resolutions for the reconstruction of the company. In an explanatory circular the directors state: "It will be in the recollection of the shareholders that for some time your directors have been considering the expediency and possibility of effecting an arrangement, either by reconstruction or otherwise, which would enable the loss of capital to be written off and the business to be put upon a sound dividend-paying basis, and also provide for the introduction of some further capital. After obtaining the best available advice and protracted negotiation, the directors are calling the extraordinary general meeting referred to in the accompanying notice, for the purpose of proposing a resolution with a view to the reconstruction of the company. Shareholders will remember that the present capital of the company is £328,000., of which £188,000. is represented by 18,800 A shares of £10 each, upon which £8. has been called up, and £140,000. represented by 14,000 fully-paid B shares of £10 each. It is proposed that £2. per share upon the A shares shall be forthwith called up, and that a new company shall then be formed, with a nominal capital of £140,000., represented by 116,000 ordinary shares of £1. each, and 24,000 six per cent. cumulative preference shares of £1. each, and that the present shareholders shall receive six ordinary shares of £1. each, credited as fully-paid, for every A share fully-paid in the present company; and that as respects the B shares in the present company, 2,850 ordinary shares in the new company to be issued as fully-paid shall be distributed *pro rata* among the holders of the present 95,000 B shares. The balance of B shares, it will be remembered, was surrendered some time since by Lord Swansea's executors, in pursuance of an arrangement made in his lordship's lifetime. Arrangements have been made under which the existing debenture debt of the company shall continue and be taken over by the new company, the debenture-holders having agreed not to exercise the right to call in their moneys which, under the terms of the debenture issue, would accrue upon the company going into voluntary liquidation. It is intended to invite subscriptions for the new preference shares at par. The present shareholders will be given an opportunity of taking these shares. It is proposed in connection with the reconstruction that the business shall proceed without interruption, the directors of the present company becoming the directors of the new company."

SALT IN CHINA.—The importation of salt into China is forbidden. The trade in salt is a Government monopoly. For purposes of the salt administration the empire is divided into seven circuits, and the salt produced in one circuit may only be sold within its own limits. The revenue derived from the monopoly is obtained in three ways:—Firstly, from the sale of licences authorising merchants to deal in salt; secondly, from the profits on the sale of salt out of the Government depôts; and thirdly, from the *likin* tax on all salt sold by the licensees to the public. Right through there is speculation on a grand scale. It has been estimated by competent persons that if the importation of foreign salt was permitted on payment of an import duty of 100% *ad valorem*, the salt revenue would be doubled, and the consumers would get their salt for about half the present price.

Trade Notes.

THE MEISENBACH CO., LTD.—We have seen the process reproduction of Messrs. W. D. Downey's authorised jubilee portrait of Her Majesty the Queen, which Messrs. Meisenbach have prepared, and it is certainly a good specimen of work. It is full of gradations of light and shade, from the highest lights to the full colour in the darkest shadows, and is an excellent example of high-class photo-engraving.

FIRE AT A CHEMICAL WORKS.—A fire resulting in great damage broke out recently in the chemical works at Bo'ness of Messrs. Thomas Owens & Sons, of Bo'ness and Leith. The works cover between three and four acres of ground. The fire originated in a bag store, and spread to a warehouse filled with manure. On the top of this building there were two large lead tanks covered with tarred wood, containing about 300 tons of sulphuric acid. The tarred wood readily caught fire, and the lead tanks melted, with the result that the sulphuric acid ran out and flooded the works, and the public road was soon covered to a depth of several inches with the vitriol. The work of subduing the flames was consequently a very difficult one, for although the sulphuric acid prevented the fire from burning too fiercely, it had the effect of destroying the hose. Several of the men who assisted in subduing the fire were badly burned by the acid.

REDUCED PHOSPHATE ROYALTIES.—A report has been received at the Foreign Office from Charleston, stating that, in accordance with a decision of the South Carolina State Phosphate Commission, the royalty on all phosphate rock mined in that State on and after April 1, 1897, will be 25 cents currency, equal to about one shilling sterling per ton, instead of 50 cents per ton previously charged. This reduction, however, under the final action of the Commission, just published, will not apply to rock on hand April 1 last, but previously mined, which will be required to pay the former royalty of 50 cents per ton. The reduction in the Carolina royalty has been brought about by the decline in prices and the keen competition in the business resulting from the growth of phosphate mining in Florida, Tennessee, and elsewhere during the past two or three years.

SULPHATE OF COPPER AT BORDEAUX.—The total quantity of copper sulphate imported in 1896 was about 16,000 tons, almost all of which was of British production. The season opened with good prices, and large purchases were made for forward deliveries. Towards March a rise in the market value set in, partly on account of copper becoming dearer, partly also because manufacturers began to see their engagements filling up. The rise continued steadily until the end of June, the demand having increased and exceeded by 1,000 tons that of the previous year. In July the demand relaxed, and makers, finding orders come in less freely, slackened prices a little. The season was, however, a good one in general, and consumers were able to derive benefit from this article, which has not always been the case. The weather being generally wet in the beginning of the season made buyers come forward, and business was fairly good, while the vineyard proprietors gave a sound and attentive treatment to their vines, which prevented "blackrot" doing any serious harm.

SIMPLIFYING PIPE-LINE LAW.—Oil men regard the pipe-line law passed by the Indiana Legislature as a wise measure, and one which will be of great assistance to capitalists who desire to operate public or private pipe lines. The law gives associations and companies the right to condemn land, that pipe line routes may be established, to construct telegraph lines, and to remove many obstacles which have heretofore been in the way. Securing rights of way has always been a great difficulty, which both the Standard and the Northern Indiana companies have contended with. Still another aggravation removed is that of a pipe line company already in the field, learning of the route of a newcomer and securing leases in its path, thus blocking the way. The farmers, as a rule, want liberal sums for allowing a pipe line to extend across their land. The companies have had to move in secret as much as possible, but under the new law they can make pipe line routes known in advance, and no land-owner or rival company can interfere.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols are steady, with 90's at 1s. 10d. and 50/90's at 1s. 11d. to 2s. Carboic acids are firm, especially 60% crude, which is quoted 2s. 3d. crystals and liquid are about the same at 7 1/4 d. and 1s. 1d. each. Crude naphthā is not quotably changed from 11d., but solvent in the turn easier at 1s. 7d. to 1s. 7 1/2 d. Creosote and anthracene quiet and unaltered. Pitch dull at 18s. to 21s. 6d., f.o.b. East Coast.

Sulphate of ammonia is steady, and prices generally are firm. Buyers are rather slow to follow any advance, but nevertheless makers remain firm, and the market generally has a hardening tendency. Beekton is now quoted £7. 11s. 3d., London outside makes £7. 10s., Liverpool £7. 13s. 9d., Hull £7. 8s. 9d. to £7. 10s., and Leith £7. 10s., all prompt.

SCCELLANEOUS CHEMICAL MARKET.

is generally in the chemical trade has been somewhat quiet the past week, due, no doubt, to the holidays and slackness in trades, etc. Bleaching powder continues steady and moves 6s. 7s. 6d. rails and 6s. 12s. 6d. f.o.b. Caustic soda quiet or demand. Soda crystals in moderate request at £2. 17s. 6d. It cake sells slowly and price may be taken as 19s. per ton on lorates of potash and soda unchanged. Acetates generally

Soda is still offered at £12. 10s. Lime—brown, £5. 5s.; 5s. Murates of ammonia weak. We quote white, £21.; Sal ammoniacs £33. to £31. Nitrate of lead, £19. to £16. Sulphocyanides in rather better demand, but change in price. Barium, 4½d.; ammonium, 6½d. White arsenic continues quiet: to-day's quotation, £22. 5s. Crude acid firmer and in good demand at 2s. 5d. per gal. Nitrate of steady for spot delivery at £7. 10s. to £7. 15s.

REPORT ON MANURE MATERIAL.

market for prompt delivery has become very quiet, the manure being now practically over. In the forward position a fair doing, but there is no activity in any department.

phosphate rock, 75/80%, offers at 5½d. per unit, shipment 1898, without attracting buyers in United Kingdom. of this description of rock seems to be destined at present for export, where relatively better prices can be obtained than in the Kingdom. Algerian 58/63% offers at 5d. per unit, but in good time less would be accepted. South Carolina River rock may 4¾d., and possibly 4¼d. per unit.

market for bone meal on spot is easier, and £3. 10s. per ton, ex- luded now probably be accepted for ordinary quality. This is also be submitted for autumn shipment.

very quiet at 7s. 4½d. per cwt., ordinary, up to 7s. 5d. for y. The market for cargoes is also much depressed, the value g due, ordinary quality, being about 7s. 3d. per cwt.

THE METAL MARKETS.

ON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 1. ; Middlesbro', 41s. 6d. cash; and hematite, 49s. Copper li bars, G.O.B.'s and G.M.B.'s, closed at £48. 16s. 3d. to 3d. cash, and £49. 1s. 3d. to £49. 6s. 3d. three months. y: Straits closed at £61. 13s. 9d. to £62. 3s. 9d. cash, 3s. 9d. to £62. 13s. 9d. three months; Australian, 6d. English ingots, £64. 17s. 6d. Lead firm; Spanish, 9d.; English, £12. 1s. 3d. Silesian spelter, ordinary, 9d. Nickel, 1s. 2½d. Antimony, £30. to £30. 10s. er: First hands, £7. 7s. 6d.; second hands, £7. 6s. 6d. hares steady: Cape, 2½ to 2¼; Copiapo, 2¼ to 2¼; ½ to 2½; Mason and Barry, 2¼ to 3¼; Rio Tinto, 2¼ Tharsis, 5¼ to 6.

OW, WEDNESDAY.—Market firm, and a fair business. ne at 46s., 46s. 1d., and 45s. 11½d. cash; also at 46s. 2½d. 2d. one month; buyers 45s. 11½d. cash; sellers, 46s. done at 41s. 6d., 41s. 7d., 41s. 6d. and 41s. 6½d. cash; 5s. 6d. cash; sellers, 41s. 7d. Cumberland hematite done at buyers 49s. cash; sellers 49s. 1d. Middlesbrough hematite 51s. 9d. to 51s. 7½d. cash; buyers, 51s. 6d. cash; sellers,

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

—Palm oil has been moving rather more freely, and fairly good ameroon and Benin have been made at £17. 2s. 6d., transit. ps steady in price, with moderate sales. Linseed is quiet, rpool makes in export casks at 15s. 6d. to 16s. 6d. per cwt., to quality. Cottonseed is firm at 15s. to 15s. 9d. for Liver- ed. Castor oil is rather quiet. Good seconds Calcutta are 1½d. to 3½d.; first pressure French 2½d. to 3d., and Madras lb. Tallow is steady, and prices are well maintained. There good demand for all grades of resin, on spot, at full values. turpentine are moving fairly well, holders being firm at per cwt. for spot. Petroleum is decidedly dull, there being ough business doing to test prices, which therefore stand at 5¼d. to 7d. for American, and 5¼d. per gallon for efined.

S.—Linseed and cottonseed are in rather better demand. erican range from £4. 17s. 6d. to £5. 2s. 6d., and Liverpool e easier at £6. 5s. to £7. per ton. American decorticated

(cottonseed) are fairly well inquired for at £5. 2s. 6d. to £5. 15s., but Liverpool makes are dull at £5. 17s. 6d. to £6. 7s. 6d. The demand for Egyptians has improved at £3. 12s. 6d.

COLOURS.—Prices are steady, and practically without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £15, Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 90s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 65s. Umber: 40s. to 45s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Excitement appears to run high here as to the fate of the North Eastern Dock Extension Bill, whereby they are pledged to spend over a million of money in generally improving and bring up to date their system here. The opposition from competitors has been very keen, but this in some measure has been allayed, and in conjunction with further active support from the commercial interests here, has considerably improved the situation, which for Hull as a port is momentous. In spite of the holidays, the value of oils have been well maintained, but in some directions the outlook for the future weeks threatens a dullness, at any rate for manufacturers, for very heavy stocks are held in warehouse. Linseed oil is steady—spot, naked, 13s. 9d. per cwt.; forward, June-August, 13s. 10½d.; last four months, 14s. Boiled and refined, £1. to £1. 10s. per ton extra. Refined cotton oil, steady—spot, naked, 12s. 10½d.; forward, June-August, 13s.; Nov.-April, 13s. 4½d. Filtered refined, about £1. extra. Crude is quoted spot, 11s. 7½d. per cwt.; casks £1., and barrels £1. 10s. per ton extra. Olive oils unchanged. Castor oil from 3d. per lb. according to origin. Cod oils, £16. to £18. per ton. Spirits of turpentine unchanged. Italian olive oil soaps, £16. to £18. per ton. Soft soap, £12. Textile soap, £15. Oleines, from £16. to £18. per ton. Chlorestine (extract of wool fat), £28. per ton.

CAKES.—Linseed cakes very dull and quiet, 95% pure, £6. 5s. to £6. 7s. 6d.; Americans, £5. 5s.; Russians, £6. 2s. 6d. to £6. 5s.; oilcakes, £5. 5s. Cotton cakes, very little business passing: best makes, £3. 12s. 6d. to £3. 13s. 9d.; seconds, £3. 8s. 9d. to £3. 10s. Rape cakes: Black Sea, £3. 12s. 6d. per ton.

PAINTS.—Makers continue very busy in anticipation of, say, a Jubilee demand. White and red leads unchanged. Mineral colours from £3. 10s. to £8. Ready mixed paints from £23. 10s. per ton. Imperial black varnish £5. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

For paraffin spirit (naphtha) there is just at present rather an active call, chiefly for shipment, and destined for purposes not of illumination but of manufacture. The price has not as been perceptibly affected, and makers regard the activity as merely a passing phrase. This is the only new feature in the mineral oil and paraffin section of the market. Lubricants are still healthy; burning oils and solid paraffins are all weakly, and only nominally quoted at the old figures, as given below. Sulphate of ammonia has improved a little, and prompt Leith is not now readily procurable at under £7. 10s. Buyers are comparatively plentiful at £7. 7s. 6d., but there are at the moment no sellers willing to trade at the figure. There is report of a transaction forward at unexpectedly good terms for the seller, but it is doubtful if this can be substantiated. General chemicals quietly steady, with little of change in price. Copper sulphate is a shade easier.

Chief prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, soda ash, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, 48/52°, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. nett, Glasgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., 60/62° £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleaching powder, 35/37°, £6. 10s. nett, Tyne; saltcake, 19s. to 20s.; borax, English, refined, £16. 10s. and boracic acid, £28. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 4d. less 5%, any port; nitrate of soda, 7s. 6d. to 7s. 9d.; sulphate of ammonia, £7. 8s. 9d. to £7. 10s., prompt, f.o.b. Leith; sal ammoniac, first and second white, £33. and £31. nett, any port; sulphate of copper, £16. 5s. less 5%, Liverpool; paraffin scale, hard, 1¼d. to 1½d., and soft, 1½d. per lb.; paraffin wax, 120° semi-refined, 1¼d. to 2d. per lb.; paraffin spirit (naphtha), 6d. to 6½d. per gallon; paraffin oil (burning) No. 1, 6¼d., and crystal, 6½d., at Glasgow and other big centres, for Scotch buyers (English sales ½d. to ¾d. lower); ditto (lubricating) 865° £5. to £5. 5s., 885° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7.

Week's imports of sugar at Greenock were 518 hogsheads, 88 barrels, and 7,000 bags beet unrefined; 2,464 bags beet refined; and 4,109 bags cane unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue in moderate demand, with practically no alteration in prices. Soda crystals are £2. 12s. 6d. per ton, gross weight, locally; caustic, 70%, £7. 10s., and 76/77%, £9. per ton. Sulphur, £4. 15s. to £5. per ton.

Bleaching powder, softs, £6. 10s. per ton, nett; hards, £6. 15s. per ton, nett; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £7. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £5. per ton, nett; soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. 12s. 6d. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, £3. 12s. 6d. per ton, nett; white alkali, 48%, £5. per ton, nett, do., 50%, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett. hyposulphite of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. kegs, £7. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, nett; do., 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton, gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt firm, at 9s. per ton, f.o.b. Tees.

COALS.—The coal trade shows rather more activity, and there is a better demand for steam and bunker coals. Coke is scarce, and very firm at from 16s. 6d. to 20s. per ton, according to quality. Best Northumbrian steam, 8s. 6d. to 8s. 9d. per ton; second qualities, 7s. 6d. to 7s. 9d. per ton; small steam, 4s. to 4s. 3d. per ton; household coals, quiet, 10s. to 10s. 6d. per ton; gas coals quiet, 7s. 3d. to 7s. 9d. per ton; coke, scarce, 17s. to 20s. per ton.

New Companies.

B. Hall, Ltd.—CAPITAL £40,000., in £1. shares, of which 20,000 are 6% cum. pref. This company has been formed to acquire the business of Benj. Hall, Trent Side, Nottingham, and to trade as soap and glue manufacturers, bone boilers and chemical manufacturers, etc. The subscribers to the memorandum of association are:—A. P. Wood, The Park, Nottingham, colliery agent; E. Smith, The Grange, Beeston, Notts, lace manufacturer; J. R. Gell, Park-street, Beeston, Notts, stockbroker; E. Cope, Noel-street, Nottingham, director; W. A. Parkes, Westminster-street, Nottingham, secretary; C. H. Williams, Wheeler Gate, Nottingham, solicitor; G. P. Goodall, 296, Mansfield-road, Nottingham, clerk.

Farsundguhr Works, Ltd.—CAPITAL £100,000. in £1. shares. This company has been formed to adopt an agreement with F. Zacher, and to develop lands, etc., in Norway, containing Kieselguhr and other minerals. Registered office, 1, Queen Victoria-street, E.C. The subscribers to the memorandum of association are:—J. F. C. Abelspies, 18, Tyndale Place, Islington, engineer; G. C. Whadcoat, 110, Cannon-street, E.C., solicitor; F. W. Loxton, 86, Herbert-road, Manor Park, E., clerk; E. A. Raven, Manor-road, Westcliff-on-Sea, clerk; J. A. Shafe, 25, Spencer-road, Holloway, clerk; H. E. Clarkes, 25, Gowlett-road, E. Dulwich, clerk; A. E. Harley, 46, Gibson-square, Islington, clerk.

Cheshire Corn, Cake, Tallow and Manure Co., Ltd.—CAPITAL £5,000. in £1. shares. This company has been formed to carry business indicated in the title.

Qualt Syndicate, Ltd.—CAPITAL £3,750. in £50. shares. company has been formed to carry on the business of miners, soda manufacturers, drysalts, etc. The first two directors Messrs. R. E. Morris and H. W. Lowe.

Patent Agglomeration Fuel Syndicate, Ltd.—CAPITAL £10 shares of £10. each. This company has been formed to acquire turn to account certain patents for the manufacturing of artificial fuel. The subscribers to the memorandum of association are:—H. Forester, Sketty, near Swansea, engineer; J. A. A. Yeo, College, gent; J. C. Woods, Swansea, solicitor; W. W. Holm, Wind-street, Swansea, agent; E. L. Forester, 26, Wind-street, Swansea, merchant; G. Forester, Highfield, Sketty, coal merchant; E. S. Isaac, West Cross, Glam., accountant.

Liver Acetylene Gas Co., Ltd.—CAPITAL £10,000. in £1. shares. This company has been formed to manufacture and deal in acetylene gas and other illuminants. Registered office, 4, York Buildings street, Liverpool. The subscribers to the memorandum of association are:—R. E. Parry, 47a, Manchester-street, W., shipowner; McCrick, 1, Northbrook-road, Ilford, cashier; T. P. Watkin, Longbridge-road, Barking, clerk; J. L. Leonard, 34, Kennel-road, Clapton, clerk; A. Salaway, 3, Park Crescent, Southend; F. Baumann, Tynley House, Leytonstone, clerk; J. Port, Durham-road, E., Finchley, accountant.

James and M. S. Sharp & Co., Ltd.—CAPITAL £175,000. shares, of which 15,000 are 5% cum. pref. This company has been formed to acquire the business of dyers and finishers carried on by the firm of above title at Bradford and Heckmondwike, and the business of manufacturing chemists and logwood, etc., grinders, carried on by the Low Moor Chemical Co., near Bradford. Registered office, Towers Dyeworks, Low Moor, near Bradford. The subscribers to the memorandum of association are:—J. Sharp, Shirley Manor, Bradford, dyer; M. I. Sharp, Spring House, Heckmondwike, dyer; L. Sharp, Wyke Hall, Wyke, Bradford, dyer; T. H. Gaunt, field, Heckmondwike, dyer; J. Casson, Woodview, Wyke, Bradford, dyer; J. S. Colefax, Bradford, C.A.; J. Sharp, jun., The Carr, near Bradford, dyer.

British Non-Inflammable Wood Co., Ltd.—CAPITAL £10,000. in £1. shares. This company has been formed to adopt an agreement with the Non-Inflammable Wood Syndicate for the purpose indicated in the title. Registered office: Army and Navy Mansions, Victoria-street, S.W. The subscribers to the memorandum of association are:—E. M. Fox, Army and Navy Mansions, Victoria-street, S.W.; F. S. Russell, Aden Mutilaw, Aberdeenshire, major-general; Hughes, 118, Bishopsgate-street Within, E.C., merchant; Graves, 77, Eaton-square, S.W., gent; A. J. Greenop, 15, Victoria-street, S.W., solicitor; E. L. Clapson, 21, Elverson-road, St. S.E., secretary; P. J. D. Lindoes, 28, Victoria-street, S.W., gent.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

H. PARR and S. ASHTON, lime burners, etc., Bakewell, under the style of Lime Co.

G. W. WEBSTER and A. J. LAYBOURNE, seed crushers and oil cake makers, Hull, under the style of Webster and Laybourne.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudications.

MAYO, THOS. CECIL (trading as Comerford, Mayo and Co.), New Orleans, Birmingham, varnish and oil merchant.

STONES, G. W., Pleasington (Lancs.) and Livesey, near Blackburn, C. manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending June 5th.

Acetic Acid—
Holland, 100 pks. R. W. Greeff & Co.

Acetone—
Holland, 1 cks. G. Rahn & Co.
Germany, 3 drs. F. Boehm
Belgium, 20 T. Jones & Co.
12 A. H. Wintergill

Alkali—
Belgium, 800 c. J. H. Hughes

Canada, 211 S. Ward & Co.

Alum—
Holland, 480 pks. Ohlen-schlager Bros.

Antimony—
France, 15 c. Girard Frs. & Co.

Antimony Ore—
E. Indies, 101 t. R. & J. Henderson

Asbestos—
Germany, £69 Craven & Co.
Canada, 297 L. & I. D. Jt. Co.
U. States, 300 Deering & Robottom

Barium Chloride—
Germany, 22 cks. Petri Bros.

Barytes—
Germany, 22 cks. W. Harrison & Co.
Belgium, 110 bgs. 36 brls. J. L. Lyon & Co.
Holland, 31 J. L. Lyon & Co.
" 23 200 W. Harrison & Co.
Belgium, 44 J. L. Lyon & Co.
Holland, 24 Pinchin, Johnson & Co.

Bleaching Powder—
Belgium, 15 cks. Butler's Wf. Ltd.

Bone Meal—
E. Indies, 200 t. A. H. Hughes

Camphor—
Hong Kong, 200 cks. R. W. Greeff & Co.
China, 102 T. Merry
Germany, 384 bxs. Prop.
Japan, 69 tubs. R. W. Greeff & Co.
" 67 S. Figg
Germany, 5 275 bxs. T. Merry
" 102 R. W. Greeff & Co.

Acid—
125 cks. J. G. Back
50 Blagden & Waugh

Acid—
30 pks. J. Barber & Co.

Acid—
64 c. Wallace Bros.
12 Saddington & Co.

Acid—
13 Prop. Bull Wf.
153 S. Figgis & Co.
53 Hale & Son

Acid—
8 L. & I. D. Jt. Co.
71 Prop. Bull Wf.
25 S. Figgis & Co.

Acid—
11 A. G. Robinson
2 & Co.
22 Wallace Bros.

Acid—
4 Major & Field
27 Girard Bros. & Co.
87 L. & I. D. Jt. Co.

Acid—
153 McIlwraith & Co.
86 L. & I. D. Jt. Co.
24 H. Johnson & S. ns

Acid—
3 L. & I. D. Jt. Co.
12 cs. Beresford & Co.
29 cks. J. Greig

Potash—
23 drs. Carey & Sons
75 J. R. Francis & Co.

Potash—
40 Perkins & Homer
40 J. M. Steel & Co.

Acid (otherwise undescribed)
L. & I. D. Jt. Co.
88 T. H. Lee

Acid—
733 A. & M. Zimmermann
110 H. Lambert

Acid—
50 C. Ward
123 Typke & King
15 H. Wallace & Co.

Acid—
19 T. H. Lee
15 A. & M. Zimmermann

Acid—
126 T. H. Lee
36 Craven & Co.
7 Brummerstaedt & Luders

Acid—
37 J. Owen
120 John Cockerill Line

Acid—
20 cks. B. & F. Wf. Co.
11 30 kgs. Kirkpatrick & Co.

Acid—
10 F. C. Devon & Co.
5 M. Ashby, Ltd.
15 C. Christophersen & Co.

Acid—
20 W. C. Bacon & Co.
13 C. Webster

Acid—
2 kgs. L. & I. D. Jt. Co.
1 kg. R. Greening

Acid—
862 pks. B. Jacobs & Sons
102 Thames S. T. & L. Co.

Acid—
20 bgs. F. Huth & Co.
4 W. M. Smith & Sons

Acid—
41 Sperling & Williams
650 bxs. J. Swire & Sons

Acid—
574 bgs. Walker, Munzie & Co.
134 Uhthoff & Co.

Acid—
306 Culverwell, Brooks & Co.

Acid—
100 brls. J. & R. Grant
5 t. L. & I. D. Jt. Co.

Acid—
1 Park Macfadyen & Co.

Acid—
57 bgs. Leach & Co.
ore, 988 bls. Hicks & Ashmore

Acid—
226 L. & I. D. Jt. Co.
25 chts. R. Von Glehn & Sons

Acid—
24 Ross & Deering
26 F. Claydon & Co.
10 Binny & Co.

Acid—
15 L. & I. D. Jt. Co.
wood, 214 t. P. Leckie & Co.

Acid—
105 Skilbeck Bros.
66 S. Dobree & Sons

Acid—
3 L. & I. D. Jt. Co.
1 Park Macfadyen & Co.

Myrabolams
E. Indies, 829 bgs. Clarke & Smith
616 Scriven Bros. & Co.

Myrabolams
1,000 pkts. A. B. Curtis & Co.

Saffron
Spain, 1 cs. Richardson, Spence & Co.

Shumac
Italy, 105 bgs. Nich's Wf.
299 Beresford & Co.

Shumac
100 H. Johnson & Sons
200 J. E. Scott
100 J. Kitchen
500 C. S. Lovell

Tannery Bark
Sydney, 52 t. Dyster, Nalder & Co.

Natal
36 Goad, Rigg & Co.
44 Flack, Chandler & Co.

Durban
357 pkts. A. & W. Nesbitt
A. Turkey, 67 t. Whitstable S. Bro.

Dyestuffs (otherwise undescribed)
E. Indies, 19 cs. L. & I. D. Jt. Co.

Farina
Holland, 150 bgs. Seaward Bros.
10 J. Barber & Co.
200 R. Bennett & Co.

Glucose
U. States, 500 pks. 500 c. Beresford & Co.

Glucose
50 300 Page & Son, & East
1,000 1,000 P. Smith

Germany
14 145 J. Knill & Co.
50 400 Deering & Robottom

U. States
150 1,126 H. Johnson & Sons
175 1,069 Williams, Torrey, & Co.

Germany
100 100 G. Hedges & Son
100 580 J. Keiller & Son

Germany
300 300 Fellows, Morton, & Co.
1,050 1,310 Seaward Bros.

Germany
100 550 Ohlerschlager Bros.
3,998 3,998 Pearce, Pelly, & Co.

Germany
200 600 T. J. Lipton
250 1,500 L. & T. Pink

Germany
1,150 1,150 Bellamy's Wf. Co.
50 290 Robinson, Son, & Co.

Germany
50 290 S. E. Railway
250 1,100 Deering & Robottom

Germany
1,800 4,925 Knowles & Padgett
500 500 C. S. Lovell

Germany
125 1,010 M. D. Co.
U. States, 5,240 8,956 R. G. Hall & Co.

Glue
Germany, £240 L. & I. D. Jt. Co.
Holland, 15 J. Barber & Co.

Glue
Belgium, 195 Sanders & Knott
Italy, 210 T. H. Lee

Glue
Germany, 19 J. Barber & Co.
75 T. H. Lee

Glue
Holland, 40 Phillips & Graves
Germany, 40

Infusorial Earth
Germany, 30 t. A. Haacke & Co.
£30 J. Barber & Co.

Infusorial Earth
80 J. Toasperm
U. States, 52 bds. J. Melvin

Lamp Black
U. States, 86 brls. L. & I. D. Jt. Co.
100 Steinhoff, Sons, & Co.

Lamp Black
50 M. Benschner
Germany, 100 bgs. G. Dards

Magnesium Sulphate
Germany, 100 bgs. Taylor Bros.

Magnesium Sulphate
Japan, 7 R. Warner & Co.
Germany, 15 C. Hof & Co.

Manure
Brisbane, 140 t. F. J. Cornwell, Son, & Co.

Manure
E. Indies, 100 Fox, Roy, & Co.

Manure
Brisbane, 11 Goad, Rigg, & Co.

Mica
E. Indies, £1215 W. M. Smith & Sons

Mineral White
Italy, 80 bgs. T. Hill Jones

Molasses—
U. States, 104 cks. 598 c. Deering & Robottom

Molasses—
100 618 L. & I. D. Jt. Co.

Molasses—
150 900 W. Balchin

Nitre
Chili, 15,189 bgs. W. Montgomery & Co.

Ochre
Germany, 12 pks. Philipps & Graves
Holland, 9

Pernanganate
Holland, 30 cks. Philipps & Graves
T. H. Lee

Phosphate Rock
France, 200 t. W. E. Cole

Pitch
France, 59 brls. H. Hill & Sons
B.W.L., 46 cks. Anglo-Contl. G. Works

Pitch
Belgium, 1 brl. D. Storer & Sons
B.W.L., 60 Arnett & Co.

Plumbago
E. Indies, 180 cks. A. B. Curtis & Co.
U. States, 2 L. & I. D. Jt. Co.

Plumbago
Ceylon, 191 brls. J. Threddar, Son, & Co.

Plumbago
58 R. G. Hall & Co.
36 Anderson, Weber, & Smith

Plumbago
18 A. B. Curtis & Co.
72 G. R. Haller

Plumbago
E. Indies, 87 cks. Montgomerie & Workman

Potassium Carbonate
France, 400 c. Charles & Fox
20 J. A. Reid

Potassium Chloride
Holland, 48 cks. H. Johnson & Sons

Potassium Permanganate
Holland, 15 cks. G. Rahn & Co.

Potassium Sulphate
Belgium, 500 bgs. F. W. Berk & Co.

Rosin
U. States, 4,040 brls. T. Nickels & Co.
B.W.L., 7,974 F. & S. Chiesman

Rosin Oil
Germany, 11 brls. H. Hunt

Saltpetre
Germany, 12 cks. L. & I. D. Jt. Co.
E. Indies, 6,023 bgs. Lucas & Spencer's Wf.

Saltpetre
Germany, 18 cks. 120 kgs. P. Hecker & Co.

Soda
Holland, 230 c. R. W. Greeff & Co.
Belgium, 400 Lamb & Co.

Soda
Holland, 3,000 R. Waters

Sodium Acetate
Belgium, 5 cks. T. Tyrer & Co.
28 trcs. J. Harrison

Sodium Bicarbonate
Holland, 5 kgs. A. & M. Zimmernann

Sodium Bichromate
Germany, 411 c. C. Tennant, Sons, & Co.

Sodium Sulphate
Holland, 31 pks. H. Wallace & Co.

Starch
Holland, 180 cs. T. H. Lee
Germany, 6 cks.

Starch
France, 440 pks. Prprs. Dowgate Dk
Austria, 10 bgs. Beck & Pollitzer

Starch
U. States, 100 bgs. W. G. Taylor & Co.
150 Ohlerschlager Bros.

Starch
France, 400 Union L. Co.
80 cs. W. E. Cole

Starch
U. States, 75 E. & T. Pink
50 bgs. Bellamy's Wf. Ltd.

Starch
Holland, 95 cs. Philipps & Graves
Belgium, 40 Leach & Co.

Starch
1,119 Sawyer, Sons, & Co.
1,059 E. & T. Pink

Starch
230 Becker & Wagner
Sydney, 131 L. & I. D. Jt. Co.

Starch
Belgium, 100 T. H. Lee
275 F. Claydon & Co.

Starch
Germany, 1,660 Horne & Co.
648 Philipps & Graves

Starch
Holland, 320 Little & Johnston
France, 8 brls. Beck & Pollitzer

Starch
Austria, 50 bgs. M. D. Co.
Sydney, 131 cs. Laughland, Mackay, & Co.

Starch
Belgium, 200 J. Harrison

Stearine
Belgium, 125 bgs. 5 cks. H. Hill & Sons

Sulphur—
Italy, 12 t. E. & T. Pink

Sulphur—
16 F. & L. Sitzer
20 J. Greig

Sulphur—
10 G. Boor & Co.
15 F. Smith
30 Union L. Co.

Superphosphates
Belgium, 500 t. Anglo-Contl. G. Wks.

Talc
E. Indies, £880 A. B. Curtis & Co.

Tartaric Acid
Italy, 16 pks. W. C. Bacon & Co.
Holland, 19 Kirkpatrick & Co.

Tartaric Acid
France, 26 B. & F. Wf. Co.
4 F. C. Devon & Co.
8 B. & F. Wf. Co.

Ultramarine
Holland, 6 pks. 10 cs. J. Barber & Co.

Ultramarine
Belgium, 4 cks. 20 brls. D. Storer & Sons

Ultramarine
Holland, 43 pks. Thames S. T. & L. Co., Ltd.

Ultramarine
Germany, 15 Steinhoff, Sons, & Co.
Holland, 12 cs. Hernu, Peron, & Co.

Ultramarine
10 pks. Philipps & Graves

Yarnish
Germany, 8 pks. H. Lambert
U. States, 6 Dawson Bros.

Yarnish
6 O'Hara, Matthews, & Co.
Belgium, 2 John Cockerill Line

Yarnish
2 Stobbs, Wilson, & Co.
U. States, 30 C. Ward

Yarnish
18 Taylor Bros.

White Lead
Holland, cks. T. & W. Farmiloe, Ltd.

White Lead
Belgium, 19 J. L. Lyon & Co.
Germany, 35 D. Storer & Sons

White Lead
France, 17 J. Watt & Son
Belgium, 48 T. & W. Farmiloe, Ltd.

White Lead
Holland, 47 Randall Bros.
France, 11 J. L. Lyon & Co.

Wood Pulp
Sweden, 4,128 pks. Henderson, Craig, & Co.

Wood Pulp
Norway, 500 Alsing & Co.
1,600 J. Sharp

Wood Pulp
Germany, 30 Johnsen & Jorgensen
Belgium, 26 Shaw Levell

Wood Pulp
Belgium, 1,720 E. J. & W. Goldsmith
Portugal, 600

Wood Pulp
Sweden, 9 M. D. Co.
Germany, 501

Wood Pulp
Austria, 100 Ekman Pulp & Paper Co.

Wood Pulp
Sweden, 406 W. E. Bott & Co.
Norway, 137 Becker & Co.

Wood Pulp
Canada, 2,075
U. States, 244 bls. Tough & Henderson

Wood Pulp
N. Russia, 1,932 Union Whvs. Co.
Sweden, 86 W. G. Taylor & Co.

Wood Pulp
Canada, 2,075 rolls Henderson, Craig, & Co., Ltd.

Zinc Ashes
Australia, 27 c. J. Greig

Zinc Oxide
Holland, 500 cks. Soundy & Sons

Zinc Oxide
Germany, 150 brls. Philipps & Graves
U. States, 100 M. Ashby, Ltd.

Zinc Oxide
100

LIVERPOOL.
Week ending June 3rd.

Alumina Hydrate
Antwerp, 6 cks. J. T. Fletcher & Co.

Ammonia (Liquid)
Copenhagen, 20 cs. N. Johansen & Dahl

Antimony
Antofagasta, 700 bgs.

Asbestos
Montreal, 3 bgs. Blumenfield & Co.

Barytes
Antwerp, 47 cks. 100 cs.

Bone Meal
Bombay, 4,000 bgs.

Borate of Lime
Antofagasta, 1,320 bgs.

Borax
Valparaiso, 2,700 cks.

Castor Oil—
Marseilles, 18 brls. J. J. Mack & Son

Chemicals (otherwise undes.)—
Hamburg, 7 cs.
Rouen, 300 cks. R. J. Francis & Co.

Chloroform—
Rotterdam, 1 cs.

Cottonseed Oil—
Newport News, 100 brls.
New York, 250

Cream of Tartar—
Bordeaux, 23 cks.

Dextrine—
Stettin, 250 sks.

Dyestuffs—
Cochineal

Las Palmas, 17 bgs. Kennedy & Moon
" 35 Evans & Woodhead

Gutch

Rangoon, 300 bxs.

Divi Divi

Hamburg, 450 bgs.

Fustic

Kingston, Ja., 19 ps. E. Chaloner & Co.

Punta Arenas, 1,285 t. Kleinwort, Sons & Co.

Indigo

Constantinople, 10 cs.

Myrobolams

Bombay, 4,753 bgs.

Saffron

Valencia, 1 cs.

Shumac

Barcelona, 100 sks.

Valonia

Marathonisi, qty.

Farina—

Havre, 995 sks. Cunard S. S. Co., Ltd.

Gelatine—

Havre, 3 cs. Cunard S. S. Co., Ltd.

Bordeaux, 1

Glucose—

New York, 148 brls. T. M. Duche & Son

" 50

Boston, 399

Newport News, 500

Baltimore, 100

Glue—

Rotterdam, 40 bgs.

Infusorial Earth—

Rotterdam, 334 bgs.

Lactic Acid—

Boston, 15 brls. 5 kgs. J. Taylor & Co.

Limestone—

Antwerp, 5 crts. J. T. Fletcher & Co.

Lithopone—

Rotterdam, 40 cks.

Molasses—

N. Orleans, 1,500 brls. F. W. Simonds & Son

Ochre—

Marseilles, 46 brls. R. R. Minton & Co.

" 374

Rouen, 35 cks. R. J. Francis & Co.

Paint—

Marseilles, 24 cs. H. Fletcher & Co.

Boston, 20

Paraffin Scale—

New York, 349 brls. Thompson & Bedford

" 912 Anglo-Am. Oil Co., Ltd.

Phosphate—

Punta Gorda (Florida), 2,600 t.

Phosphate Rock—

Pensacola, 6 bxs. W. H. Stead

Potash—

Hamburg, 80 cks.

Montreal, 12 brls.

Potassium Permanganate—

Rotterdam, 3 cks.

Pyrites—

Huelva, 3,566 t. Maibeson & Co.

Rosin—

Brunswick, 3,075 brls.

Silver Sulphide—

Valparaiso, 1 cs. Woodgate, Innes & Co

Soap—

Colon, 1 bx. W. I. & P. S. S. Co., Ltd.

New Orleans, 953 brls.

Marseilles, 9 cs. P. W. Nicholson

" 851 100 pks.

Starch—

New York, 100 bgs.

Boston, 349

Newport News, 794

Antwerp, 590 cs.

" 96 J. T. Fletcher & Co.

Rotterdam, 40

Stearine—

Antwerp, 1 bg.

Talc—

Bordeaux, 51 bgs.

Tallow—

San Francisco, 350 brls.

Tartaric Acid—

Rotterdam, 4 cks.

Turpentine—

Brunswick, 380 brls.

Libau, 52

Yarnish—

New York, 1 bx. Staveley & Co.

Waste Salt—

Hamburg, 1,000 bgs.

Harburg, 250 t.

Wood Pulp—

Boston, 140 crts. Lever Bros., Ltd.

" 541 bls.

Rotterdam, 170

Zinc Oxide—

New York, 100 brls.

Antwerp, 25

Rotterdam, 20 cks. J. Mathews & Co.

" 20

Zinc White—

Stettin, 50 cks. M. Ashby, Ltd.

MANCHESTER.

Week ending June 5th.

Alizarine—

Rotterdam, 116 cks. 2 cs. 27 brls.

" 2 bxs.

Aluminium—

New York, 135 bxs. T. Ashbury

Aniline Colours—

Rotterdam, 33 cks. 3 cs.

Barytes—

Antwerp, 150 bgs.

Colours—

Ghent, 4 brls.

Rotterdam, 29 cks. 92

" 13 bxs.

Boulogne, 17 3 cs.

Glucose—

New York, 230 brls.

Rotterdam, 4 cks.

Glue—

Rotterdam, 120 bgs.

Limestone—

Antwerp, 7 crts.

Lithopone—

Rotterdam, 4 cks.

Methylene—

Treport, 10 cks.

Naphthol—

Rotterdam, 4 cks.

Ochre—

Treport, 62 cks.

Oxalic Acid—

Rotterdam, 6 cks.

Paraffin Scale—

New York, 230 brls.

Potash—

Treport, 2 cks.

Potassium Carbonate—

Stettin, 37 cks. Stott, Coker, & Co.

Potassium Chlorate—

Gothenburg, 40 kgs.

Rosin—

New York, 5 brls.

Salt—

Hamburg, 500 cks. 500 bgs.

Soda—

Rotterdam, 12 cks.

Sodium Acetate—

Treport, 56 cks.

Sodium Nitrate—

Rotterdam, 4 cks.

Starch—

New York, 600 bgs. T. M. Duche & Sons

" 2,200

Antwerp, 304 cs.

Rotterdam, 5

Tallow—

Sydney, 7 cks. Co-op. W'sale Society, Ltd.

Tar Oil—

Antwerp, 21 cks. J. T. Fletcher & Co.

Tar Waste—

Rotterdam, 4 cks.

Tartar—

Rotterdam, 6 cks.

Tartaric Acid—

Rotterdam, 8 cks.

Toluidine—

Rotterdam, 4 cks.

Waste Salt—

Hamburg, qty.

Wood Pulp

Christiania, 2,100 bls. 20 cs.

Gothenburg, 4,559 bls.

Zinc Oxide—

Antwerp, 10 brls. and qty.

Rotterdam, 25

Zinc Sulphate—

Rotterdam, 2 brls.

Zinc White—

Rotterdam, 12 cks.

HULL.

Week ending June 5th.

Albumen—

Libau, 5 cs. Bailey & Leatham, Ltd.

Asbestos—

Christiania, 5 cs. Wilson, Sons, & Co., Ltd.

Barytes—

Bremen, 35 cks.

Antwerp, 19

" 58

Rotterdam, 118 100 bgs.

" 77 53 W. & C. L. Ringrose

Bremen, 22 S. Tudor & Co.

Rotterdam, 63 Hutchinson & Son

Bleaching Powder—

Rotterdam, 40 cks. Wilson, Sons, & Co., Ltd.

Carbolic Acid—

Amsterdam, 9 brls. Hutchinson & Son

Chemicals (otherwise undescribed)

Bremen, 4 cks.

New York, 1,697 bgs. Wilson, Sons, & Co., Ltd.

Stettin, 4 cks.

Riga, 17 pks. "

Antwerp, 175 "

God Oil—

Drontheim, 6 pks. Wilson, Sons, & Co., Ltd.

Aalesund, 331

Bergen, 55 cks. "

Colours—

Danzig, 10 cks. Wilson, Sons, & Co., Ltd.

Rotterdam, 4

" 2 brls. 175 pks. W. & C. L. Ringrose

" 2 cs. Hutchinson & Son

Antwerp, 5 pks. Wilson, Sons, & Co., Ltd.

Hamburg, 5 cs. G. Malcolm & Son

Cryolite—

Copenhagen, 4 cks. Wilson, Sons, & Co., Ltd.

Dextrine—

Hamburg, 30 bgs. Wilson, Sons, & Co., Ltd.

Dyestuffs—

Argols

Bordeaux, 41 cks. Wilson, Sons, & Co., Ltd.

Extracts

Antwerp, 10 cks.

Tannera's Bark

Ghent, 113 bgs. Hutchinson & Son

Farina—

Ghent, 20 bgs. Wilson, Sons, & Co., Ltd.

Glucose—

New York, 5 brls.

Kaolin—

Amsterdam, 20 cks. Reckitt & Son

Nickel Salts—

Rotterdam, 1 ck. Hutchinson & Son

Paint—

New York, 12 cs. Wilson, Sons, & Co., Ltd.

Boston, 59 "

Pitch—

Amsterdam, 25 cks. Hutchinson & Son

Saltpetre—

Antwerp, 135 bgs. Wilson, Sons, & Co., Ltd.

Soap—

Rotterdam, 2 cs. Hutchinson & Son

New York, 886 brls.

Soda—

Antwerp, 100 bgs.

Sodium Nitrate—

Hamburg, 190 bgs.

Starch—

rdam,	20 cks.	J. Rankine & Son
ina Sulphate—		
erp.	100 bgs.	
se Colours—		
burg,	1 cs.	
se Salts—		
rdam,	4 cks.	
tos—		
a,	16 pks.	
es—		
rdam,	172 cks	
r Oil—		
erp.	57 cks.	
icals (otherwise undescribed)		
iania,	20 cks.	
ne Ore—		
ey,	6,368 bgs	
rs—		
erp,	6 cks.	
rdam,	5	
"	61 pks.	J. Rankine & Son
4,	3	
uffs—		
arine		
rdam,	43 cks.	
iline		
rdam,	3 cs. 10 cks.	
dder		
rdam,	2 cks.	
A—		
ryhl,	200 bgs.	
n,	41 cks.	
York,	47 trcs.	
n,	10 brls.	
4,	25	
burg,	40 bgs.	
erp,	2	
m—		
"	400 bgs.	
Black—		
York,	150 brls.	

Methyl Alcohol—		
Antwerp,	4 dms.	
Ochre—		
Rouen,	59 cks.	
Oxalic Acid—		
Rouen,	6 cks.	
Paint—		
Rouen,	6 cs.	
Nantes,	30 pks.	
Phosphate of Lime and Rock—		
Ghent,	2,020 bgs.	
Potash—		
Rouen,	53 cks.	J. Rankine & Son
Rosin—		
New York,	178 brls.	
Soap—		
Nantes,	2 cks.	
Sodium Acetate—		
Rouen,	24 cks	
Antwerp,	5	
Starch—		
Montreal,	25 bxs.	
Rouen,	20 cs.	
Antwerp,	35	
New York,	500 bgs	
Treacle—		
New York,	300 brls.	
Varnish—		
New York,	97 brls.	
Antwerp,	1 tin	
Waste Salt—		
Hamburg,	135 cks. 2,336 bgs. & qty.	
White Lead—		
Rouen,	36 cks.	J. Rankine & Son
Wood Pulp—		
Boston,	122 bls.	
Hamburg,	600	
Christiania,	240	
"	1,080	Christophersen
"	1,884	Andrews & Co.
Zinc Oxide—		
New York,	200 brls.	
Hamburg,	5 cks.	

TYNE.		
Week ending June 5th.		
Alum Earth—		
Hamburg,	7 cks.	Tyne S. S. Co
Barytes—		
Rouen,	22 cks.	Tyne
Rotterdam,	268 bgs.	S. S. Co.
Castor Oil—		
Antwerp,	28 cks.	Tyne S. S. Co.
Cod Oil—		
Drontheim,	4 brls.	
Glue—		
Hamburg,	40 bgs.	Tyne S. S. Co.
Kieselguhr—		
Bergen,	263 bgs.	
Limestone—		
Antwerp,	2 cs.	Tyne S. S. Co.
Linseed Oil—		
Amsterdam,	10 cks.	Wm. Swanston & Sons
Phosphate—		
Dunkirk,	270 t.	Langdale's Chemical M. Co.
Antwerp,	525	
"	90 bgs.	Tyne S. S. Co.
Soap—		
Rotterdam,	3 cs.	Tyne S. S. Co.
Starch—		
Rotterdam,	34 cs.	Tyne S. S. Co.
Tartaric Acid—		
Rotterdam,	6 cks.	Tyne S. S. Co.
Waste Salt—		
Harburg,	159 t.	Clephans & Wiencke
White Lead—		
Antwerp,	11 cks.	Tyne S. S. Co.
Wood Pulp—		
Christiania,	58 cs.	
Zinc Ashes—		
Antwerp,	6 cks.	Tyne S. S. Co.
GOOLE.		
Week ending June 2nd.		
Antimony—		
Boulogne,	7 cks.	

Dyestuffs (otherwise undescribed)		
Amsterdam,	8 cks.	
Boulogne,	36	2 cs.
Rotterdam,	226	35
Logwood—		
Hayti,	454 t.	
Manganese—		
Rotterdam,	15 bgs.	
Manure—		
Hamburg,	155 bgs.	
Pitch—		
Antwerp,	1 cs.	
Potash—		
Antwerp,	400 cks.	4 dms.
Pyrites—		
Huelva,	1,513 t.	
Saltpetre—		
Rotterdam,	100 bgs.	
Sodium Silicate—		
Rotterdam,	1 ck.	
Tartar—		
Antwerp,	5 cks.	
Tartaric Acid—		
Rotterdam,	5 cks.	
Waste Salt—		
Hamburg,	138 cks.	
GRIMSBY.		
Week ending June 5th.		
Aniline—		
Hamburg,	25 cks.	
Aniline Colours—		
Antwerp,	22 pks.	
Chemicals (otherwise undescribed)		
Hamburg,	17 cks	
Antwerp,	6	17 pks.
Dyestuffs (otherwise undescribed)		
Dieppe,	2 cks.	
Plumbago—		
Hamburg,	3 cks.	
Wolfram Ore—		
Hamburg,	5 cs.	
Zinc Ashes—		
Antwerp,	16 cks.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		
Week ending June 9th.		
antle,	3 t. 5 c.	£10
real,	11	34
urne,	3 16	75
erp,	4 13	25
nia—		
m,	7 cs.	£11
ca,	4	12
d,	50 t.	375
town,	10	15
nia (Liquid) —		
Elizabeth,	2 cs.	£71
ium Carbonate—		
rbury,	10 c.	£16
tersburg,	24 t.	603
a,	2	50
ium Chloride—		
hai,	72 kgs.	£62
erp,	1 t. 4 c.	40
h,	6 pks.	37
ium Sulphate—		
lion,	101 t. 2 c.	£731
ia,	101	731
cia,	75	562
en,	150	1,180
burg,	50	400
id,	50 10	383
abo,	5	47
ort,	59 3	540
haya,	138	1,058
iloes,	151	1,231
rdam,	528 13	4,294
Palmas,	26	50
drous Ammonia—		
Town,	3 cyldrs.	£30
ie—		
ington,	15 c.	£21
er,	8	11

Barium Nitrate—		
Madras,	13 kgs.	£15
Borax—		
Hamburg,	10 cks.	£91
Durban,	30 cs.	34
Bussorah,	2	10
Melbourne,	8 c.	26
Carbolic Acid—		
Colombo,	9 cs.	£15
E. London,	2	16
Fremantle,	2	7
Bombay,	2 24 pks. 210 dms.	68
Alexandria,	4 cks.	22
Treport,	25	50
Carbonic Acid Gas—		
Jersey,	41 tubes	£15
Caustic Soda—		
Pt. Elizabeth,	10 c.	£12
Brisbane,	16 t. 6	118
Napier,	8	19
Melbourne,	3 7	100
Wellington,	5 5	38
Fremantle,	3	7
Chemicals (otherwise undescribed)		
Antwerp,	15 cks.	£300
Dunkirk,	40	400
Pt. Limon,	10 pks.	42
Adelaide,	5 kgs.	15 cs. 36
Gibraltar,	3	20
Cologne,	4	22
Hamburg,	2	10
Dunedin,	8	10
Madras,	12 18	43
Melbourne,	30 10	162
E. London,	30	10
B. Ayres,	291 dms.	98
Calicut,	4	19
Champerico,	14	45
Bombay,	27 19	152
Calcutta,	6	38
Citric Acid—		
Townsville,	1 c.	£7
Delagoa Bay,	1	8

Alexandria,	5 cks.	37
Otago,	15	84
Melbourne,	5	28
Cape Town,	1 cs.	5
Sydney,	30 kgs.	160
Hamburg,	27	159
Seville,	1 t. 5 c.	140
Coal Products—		
Alizarine		
Bordeaux,	12 cks.	£283
Lisbon,	2	31
Lyttelton,	5	92
Aniline		
Madras,	2 cs.	£12
Genoa,	2	11
Anthracene		
Cologne,	110 cks.	£454
Dusseldorf,	424	2,640
Benzine		
Melbourne,	20 crts. 10 dms.	£43
Benzol		
Hamburg,	49 cks.	£155
Boulogne,	96	345
Treport,	4 brls.	19
Creosote		
Newport, Mon.,	500 cks.	£331
Creosote Salts		
Philadelphia,	650 bgs.	£185
Naphtha		
Ghent,	32 brls.	£57
New York,	22 dms.	172
Naphtha (Solvent)		
New York,	20 dms.	£292
Naphthaline		
Paris,	153 bgs.	£101
Hamburg,	6 cks.	50
Pitch		
Wyburg,	100 t.	£128
Sydney,	10 frkns.	7
St. Michael's,	5 brls.	6
Halifax,	30	14
Hochfeld,	149	229
Aviles,	800	1,240
Baltimore,	1,000 bgs.	150

Stettin,	56	122
Newport, Mon.,	125 cks.	108
Antwerp,	1,238	1,554
Montreal,	340	84
Alexandria,	100	39
Venice,	1,600	1,760
Newcastle,	10	8
Pt. Elizabeth,	20 kgs.	6
Boston,	650	301
Canterbury,	12 pks.	5
New York,	545	1,700
Pyridine Bases		
Hamburg,	12 brls.	£183
Tar		
Wyburg,	534 rmlts.	£287
New York,	20 brls.	20
Rotterdam,	100 cks.	70
Antigua,	6 6	11
Durban,	180 dms.	23
Sydney,	150	27
Bombay,	15	28
Newcastle,	10	16
Hamburg,	150	57
Colombo,	39	100
Tar Oil		
Marseilles,	35 brls.	£67
Tar Salts		
Brussels,	5 cks.	£35
Coal Products (otherwise undes.)—		
Montreal,	10 dms.	£37
Fremantle,	20	5
Cape Town,	16 brls.	9
Copper Sulphate—		
Antwerp,	30 t.	£470
Rotterdam,	5	80
Cream of Tartar—		
Canterbury,	5 c.	£20
Pt. Chalmers,	2 t.	161
Hamburg,	4 cs.	82
Lyttelton,	10	40
Santos,	2	10
Dunedin,	10 20	127
Melbourne,	10	39

Disinfectants—

Otago,	17 cs.	£37
Melbourne,	79 dms.	88
Canterbury,	10 pks.	18
Colombo,	170	293
Hong Kong,	13 brls.	52
Cape Town,	12	30
Sydney,	52	91
Hamburg,	108	10 cks.
Bombay,	1,730	25 kgs.
Calcutta,	739	700

Fluoric Acid—

Pt. Elizabeth,	1 cs.	£12
----------------	-------	-----

Lime—

Cape Town,	5 t.	3 c.	£16
------------	------	------	-----

Manure—

Amsterdam,	58 t.	11 c.	£634
Barbadoes,	175	10	1,450
Pt. Chalmers,	150		640
Colombo,	1		19
Calcutta,	1		19
Madras,	1		19
Townsville,	10		149
Bluff,	355	7	933
Rouen,	25		175

Myrbane—

Wellington,	1 cs.	£10
-------------	-------	-----

Nitric Acid—

Jersey,	14 carboys.	£28
---------	-------------	-----

Phosphorus—

Pt. Elizabeth,	5 cs.	£48
----------------	-------	-----

Potassium Carbonate—

Santander,	11 c.	£10
------------	-------	-----

Potassium Chlorate—

B. Ayres,	3 t.	£103
New York,	5	174

Potassium Cyanide—

Pt. Elizabeth,	7 t.	£539
Rio de Janeiro,	1 t.	150
Townsville,	20	1,350

Potassium Permanganate—

Bombay,	10 c.	£36
---------	-------	-----

Potassium Prussiate—

Antwerp,	2 cks.	£32
Genoa,	2	35

Saltpetre—

Pt. Elizabeth,	11 c.	£19
Auckland,	15	16
Dunedin,	1 t.	21
Lisbon,	1	16
Bahia,	2	6

Salts of Soda—

Brussels,	7 c.	£13
-----------	------	-----

Sheep Dip—

Jamaica,	58 dms.	£17
Pt. Elizabeth,	615	271
Bombay,	2 cks.	14
B. Ayres,	250	70

Soda—

Otago,	3 c.	£6
Rotterdam,	5 t.	30
Danzig,	1	2
Rouen,	4	10
Bombay,	5	10

Soda Crystals—

Pt. Elizabeth,	4 t.	11 c.	£14
----------------	------	-------	-----

Sodium Bicarbonate—

Auckland,	5 t.	£32
-----------	------	-----

Sodium Tartrate—

Montreal,	1 t.	6 c.	£105
-----------	------	------	------

Strontium Nitrate—

New York,	4 t.	12 c.	£100
-----------	------	-------	------

Sulphuric Acid—

Pt. Elizabeth,	30 cs.	£2
----------------	--------	----

Superphosphates—

Canaria,	28 t.	£98
Barbadoes,	50	140

Tartaric Acid—

Melbourne,	1 t.	£110
Bombay,	4 cs.	19
Karachi,	20	122
Rangoon,	2 kgs.	11
Auckland,	5 c.	28
Dunedin,	2	13
Napier,	2	11

LIVERPOOL.

Period ending June 9th.

Acetic Acid—

Lisbon,	18 c.	£9
---------	-------	----

Alum—

B. Ayres,	1 t.	3 c.	2 q.	£19
-----------	------	------	------	-----

Valparaiso,	2	5
Smyrna,	7	5
Bahia,	1	2

Ammonium Carbonate—

Rotterdam,	1 t.	1 c.	£29
Oporto,	1	11	34
Genoa, 30 kgs.	2	11	3 q.
Riga,	1		28

Ammonium Chloride—

Stettin,	1 t.	1 c.	£19
Lisbon,	1	9	14
Madras,	1		31
Galatz,	1	5	39
Montreal,	1	11	32
Genoa,	1		34
Alexandria,	3		92
Dedagatch,	8		13
Copenhagen,	2	10	46
Hiogo,	2	10	

Ammonium Sulphate—

Las Palmas,	50 t.	3 c.	£385
Montreal,	10		72
Gd. Canary,	24	18	1 q.
Cullera,	129	14	3
Valencia,	284	15	1
Singapore,	2	304	

Antimony Sulphide—

Boston,	5 c.	1 q.	£42
---------	------	------	-----

Bleaching Powder—

Baltimore,	136 cks.		
Boston,	314		
Genoa,	101		
Leghorn,	52		
Montreal,	40		
Naples,	19		
Newport News,	200		
New York,	450		
Philadelphia,	150		
Rouen,	35		

Boracic Acid—

Rotterdam,	7 c.	1 q.	£10
Brisbane,	1 t.		31

Borax—

Montreal,	12 t.	18 c.	1 q.	£234
Amsterdam,	4	2		82
Stettin,	1		2	264
Rotterdam,	1	3		23
Kobe,	3	7	3	50
Natal,	2			42
Bremen,	10	16	3	171
Antwerp,	15	8		308
Galatz,	16			20
Yokohama,	3	8	3	55
Riga,	2	2		42
Genoa,	6	12	2	108

Calcium Chloride—

Boston,	50 t.	7 c.	£96
---------	-------	------	-----

Carbolic Acid—

Copenhagen,	1 t.	1 c.	£68
Hong Kong,	11	2 q.	11
Calcutta,	5	13	3
Odessa,	14	2	62
Algiers,	6		20
Oporto,	2		11
New York,	1	13	3
Toronto,	1	5	93
Rotterdam,	2	14	30

Caustic Soda—

Alexandria,	72 dms.		
Alicante,	40		
Baltimore,	50		
Barcelona,	130	100 cks.	
Boston,		81 brls.	
B. Ayres,	100		
Catania,	70		
Copenhagen,	25		
Dunkirk,	8		
Genoa,	120		
Halifax,	35		
Hamburg,	189		
Hiogo,	300		
Libau,	68		
Malaga,	50		
M. Video,	75	10	
Montreal,	60		
Naples,	20		
N. Orleans,	70		
New York,	510		
Odessa,	25		
Penang,	20		
Philadelphia,	275		
Quebec,	75		
Rangoon,	15		
Rouen,	52		
San Sebastian,	60		
Santos,	40		
Tampico,	211		
Valparaiso,	100		
Vigo,	7		

Chemicals (otherwise under.)—

Bremen,	10 c.	£14
Stettin,	1 t.	14
New York,	4	18
Galatz,	1	10

Antwerp,	10	15
Hamburg,	2	12
Sydney,	15	21
Odessa,	2	10
Philadelphia,	13	15
Alexandria,	1	1 cs.

China Clay—

Boston,	1,396 cks.	
Calcutta,	160	
Lisbon,	97 bgs.	
Melbourne,	8 cks.	
Montreal,	52	
Philadelphia,	308	

Chromium Oxide—

Valencia,	1 c.	£9
-----------	------	----

Coal Products—

Aniline		
Genoa,	4 dms.	10 tcs.
Aniline Oil		
Barcelona,	21 cks.	
Boston,	8 dms.	
Tar		
New York,	19 cks.	
St. John's,	120 brls.	
Singapore,	30 cs.	

Cobalt Oxide—

Valencia,	1 c.	£36
-----------	------	-----

Copper Sulphate—

Constantinople,	10 t.	£170
Newfairwater,	12	6 c.
Trieste,	10	3
Palermo,	1	18
Rouen,	60	2
Christiania,	3	5
Ghent,	4	18
Vigo,	6	12
Messina,	1	10
Konigsberg,	1	5
Valparaiso,	4	10
Odessa,	2	19
Calcutta,	10	173
Paris,	5	2
Marseilles,	5	1
Libau,	1	3
Cette,	95	2
Rotterdam,	176	3
Lisbon,	10	1
Naples,	15	1
Nantes,	11	6
New York,	44	18
Genoa,	34	5
Leghorn,	24	18
Tampico,	30	5
Bordeaux,	75	18
Stettin,	8	7

Copperas—

Valparaiso,	20 t.	14 c.	£36
Bombay,	13	1	24
Alexandria,	10	10	16
Las Palmas,	2		5

Disinfectants—

Genoa,	6 c.	2 q.	£12
--------	------	------	-----

Iron Sulphate—

Vera Cruz,	1 t.	-6 c.	3 q.
------------	------	-------	------

Lime—

Maranham,	3 t.	5 c.	£9
Cape Mount,	1	15	4
Lorne,	8		20
Iquitos,	7	15	-8

Magnesia—

B. Ayres,	11 cs.		
Havre,	24		

Magnesium Carbonate—

Sydney,	5 c.	£5
---------	------	----

Oxalic Acid—

Barcelona,	5 t.	17 c.	£174
Boston,	5	13	172

Palet—

B. Ayres,	15 cks.	20 cs.	
Callao,		40	
Chama,		19 pkgs.	
Colombo,	4		
Curacao,		125 kgs.	
Hamburg,	20		
Havana,		20	
Lagos,		166	4 brls.
Lanzarote,	4		
Monrovia,	2		
Nuevitas,	2		
New York,	67		
Panama,		25 cs.	
Para,	3		
Philadelphia,		6	
Piraeus,	2		
Porto Alegre,	5 brls.		
Rosario,	17		
Rotterdam,		2	
Santander,	19		
Smyrna,		300	
Varna,	10		
Sierra Leone,		212	
Valparaiso,	95	200 dms.	

Painters' Colours—

Antofagasta,	7 cks.	
Boston,	2	2 pks.
Madaira,	1 cs.	
Maranham,	20 kgs.	20 brls.
Melbourne,	40	

Paraffin Wax—

Alexandria,	20 cs.	
-------------	--------	--

Phosphate—

Barbadoes,	25 t.	
------------	-------	--

Phosphorus—

San Luis Potosi,	1 t.	10
Shanghai,	1 t.	10
Yokohama,	1	
Hiogo,	2	10
Hamburg,	3	

Potassium Bichromate—

M. Video,	5 c.	
-----------	------	--

Potassium Chlorate—

Lisbon,	6 c.	
Tampico,	10	
San Luis Potosi,	15	
Mexico City,	2 t.	10
Pernambuco,	1	10
St. Petersburg,	10	
Rotterdam,	1	15
Gothenburg,	3	
New York,	25	

ore,	600		
res,	200	70	
hagen,	300	100	266
burg,	175		
urg,	100	61	
deo,	300	40	
cal,	10		
ork,	1,500	169 tcs.	
dam,		5 dms.	
ersburg,		69 brls.	
	300		96
ystals—			
		8 cks.	
al,	150 kgs.	50 brls.	
ork,	224		
elphia,	280	480	
n t,	10		
Bicarbonate—			
y,	150 kgs.		
es,		25 brls.	
	50		
	20		
	100		
		5 cks.	
ans,	83		
	54		
	30		
lam,		20	
	122		
n's,	20		
o,	270		
d,	25		
Chlorate—			
p,	5 kgs.		
am,	100		
	134 bgs.		
l,	225 t.	3 c.	£1,076
	50	2	213
as,	7	2 q.	6
osphates—			
aire,	150 t.		£413
	250	1 c.	662
	70	14	1 q. 130
		24 cs.	
		6 brls.	
lead—			
ay,	120 dms.		
ong,	40		
loride—			
de—	5 t.		£61
ns,	1 c.	2 q.	£7

CHESTER.

Week ending June 2nd.

Oil—			
	5 dms.		
(otherwise undescribed)			
ad,	16 cs.		
Arseniate—	30 cks.	50 brls.	
		1 brl.	

HULL.

Week ending June 5th.

um Sulphate—	10 cks.		
	96 bgs.		
m,	100		
		24 brls.	
m,		75	
g Powder—			
	24 cks.		
	10		
oda—			
ia,	1 ck.		
		35 dms.	
		31	
(otherwise undescribed)			
	45 cks.		
m,	100		
		16 brls.	
	4	120 pks.	
	3	5 cs.	3
	1		
egs,	11	17	

Hamburg,		233	
Hango,		1	2
Naples,			2
Riga,			35
Stettin,		4	
St. Petersburg,	85	13	
Venice,			
Cottonseed Oil—			
Antwerp,	578 c.		
Amsterdam,	429		
Christiania,	170		
Drontheim,	45		
Dunkirk,	200		
Gothenburg,	17		
Hamburg,	1,138		
Konigsberg,	117		
Marseilles,	6,188		
Rotterdam,	712		
Stockholm,	705		
Trieste,	300		
Dyestuffs (otherwise undescribed)			
Genoa,		14 dms.	
Riga,	6 cks.		
Rotterdam,	2	1 cs.	
Stettin,	205 bgs.		
St. Petersburg,		3	
Linseed Oil—			
Amsterdam,	448 c.		
Bergen,	17		
Christiania,	2,033		
Christiansand,	105		
Christiansund,	38		
Drontheim,	21		
Gothenburg,	200		
Hamburg,	3		
Rotterdam,	304		
Trieste,	35		
Venice,	40		
Manure—			
Riga,	350 t.		
Naphtha—			
Marseilles,	30 cks.		
Paint—			
Aalesund,		5 dms.	
Bergen,	2 cks.		
Painters' Colours—			
Antwerp,	4 cks.	4 cs. 220 pks.	
Abo,		1	
Amsterdam,	52		
Bergen,	42 kgs.		
Bremen,		1	
Christiania,	3 cks.		
Christiansand,	2		
Copenhagen,	26	5	
Drontheim,	46	240 dms.	
Dunkirk,		80 pks.	
Fiume,	2		
Gothenburg,	10	2	
Genoa,	8	45	15 dms.
Ghent,	22	2	
Hamburg,			
Marseilles,	3		
Messina,		10	
Palermo,		15	
		25 pks.	
Rotterdam,	13	5	
Stettin,		1	
St. Petersburg,	37		
Stockholm,		8	
Trieste,	8		
Pitch—			
Antwerp,	294 t.		
Gothenburg,		10 cs.	
Genoa,	102		
Pyridine—			
Hamburg,		1 dm.	
Soap—			
Copenhagen,		1 cs.	
St. Petersburg,		1	
Stockholm,		1	
Tallow—			
Antwerp,	5 cks.		
Dunkirk,	148		
Leghorn,	48		
Stockholm,	10		
Wyburg,	4		
Tar—			
Amsterdam,	23 cks.		
Bergen,	1		
Copenhagen,	15		
Rotterdam,	12		
Treacle—			
Stockholm,	20 kgs.		
Varnish—			
Antwerp,		2 cs.	
Copenhagen,		1 ck.	
Gothenburg,		1	
Ghent,			2 dms.
Lersey,			2 pks.
Marseilles,		3	
Stettin,	11	1	
Stockholm,	1		
Bremen,	1		

GLASGOW.

Week ending June 10th.

Chemicals (otherwise undescribed)			
Christiania,		£10	
Rotterdam,		10	
Coal Products—			
Benzol			
Rotterdam,	47 brls.		
Creosote Oil		£168	
Christiania,		£20	
Hamburg,	10 t.		
Naphtha			
Dieppe,	40 t.	4 c.	
Pitch			
Dieppe,	620 t.		
Hamburg,	1	10½ c.	
Tar			
Christiania,	20 brls.		
Hamburg,	2 t.	18½ c.	
Riga,	2	7	
Coal Products (otherwise undescribed)		£45	
Christiania,		£8	
Riga,	5 t.		
Rotterdam,		52	
Dyestuffs (otherwise undescribed)		£24	
Montreal,			
Extracts—			
Toronto,		£109	
Gelatine—			
New York,		£522	
Linseed Oil—			
Canada,	12 t.	15¼ c.	
Litharge—			
Montreal,		£98	
Logwood—			
Montreal,		£32. 14s.	
Christiania,		12 c.	
Magnesium Sulphate—			
Montreal,		£40	
Manure—			
Penang,	1 t.	5½ c.	
Paint—			
Natal,		£53	
Singapore,		£22. 15s.	
Painters' Colours—			
Calcutta,		£650	
Cape Town,	qty.		
Johannesburg,		£44. 11s.	
Newcastle,		£120	
Sydney,		513	
Bergen,		4¾ c.	
Paraffin Wax—			
Cape Town,		£80	
Potassium Bichromate—			
Antwerp,		£416	
Christiania,		205	
Spain,		52	
Starch—			
Rotterdam,		£25	
Tallow—			
Rotterdam,	17 t.	11 c.	
Treacle—			
Cape Town,	2 t.	10 c.	
Christiania,	3	18	
Bergen,	4	2	
Christiansund,	12	9	
White Lead—			
Cape Town,		£56	
Transvaal,		58	
Zinc Ashes—			
Rotterdam,	19 t.	10 c.	

TYNE.

Week ending June 5th.

Alkali—			
Bergen,	2 t.	19 c.	
Amsterdam,	19	15	
Antwerp,	1	14	
Alumina Sulphate—			
Rouen,	5 t.	3 c.	
Aluminous Cake—			
Copenhagen,	49 t.	19 c.	
Ammonia—			
Pomaron,		6 c.	
Ammonium Chloride—			
St. Petersburg,	30 t.	1 c.	
Antimony—			
Rotterdam,	1 t.		
Montreal,	2		
Barium Binocide—			
Rouen,	5 t.	10 c.	
Barium Carbonate—			
Antwerp,	15 t.	14 c.	
Hamburg,	12		
Blanc Fixe—			
Antwerp,	1 t.	5 c.	

Bleaching Powder—

Hamburg,	10 t.	1 c.
Rotterdam,	16	18
Copenhagen,	4	1
Lisbon,	12	1
Amsterdam,	4	11
St. Petersburg,	25	
Dunkirk,	5	1
Bergen,	17	4
Christiania,	20	19

Caustic Soda—

Antwerp,	15 t.	17 c.
Hamburg,	14	10
Copenhagen,	7	6
St. Petersburg,	30	
Bergen,		3
Christiania,	3	
Montreal,	8	14

Copperas—

Hammerfest,	5 t.	7 c.
Amsterdam,	5	3

Extracts—

Bergen,		5 c.
---------	--	------

Hydrochloric Acid—

Pomaron,		13 c.
----------	--	-------

Litharge—

Hamburg,	4 t.	12 c.
Rotterdam,		11
Stockholm,	5	2
Amsterdam,	2	5
Rouen,	5	5

Magnesia—

Antwerp,		1 c.
Hamburg,	1 t.	8
Rotterdam,		9
Copenhagen,		2
St. Petersburg,		17

Paint—

Bergen,		4 c.
Hamburg,	4 t.	10
Copenhagen,		1
Christiania,		8

Soda—

Antwerp,	5 t.	
Hamburg,	20	6 c.
Thisted,	10	15
Stockholm,	42	3
Amsterdam,	10	
Drontheim,	29	18
Christiania,	10	

Soda Ash—

Lisbon,	9 t.	18 c.
---------	------	-------

Sodium Hyposulphite—

Montreal,	21 t.	4 c.
-----------	-------	------

Sodium Sulphate—

Karlstad,		550 t.
Christiania,		10 c.

Starch—

Copenhagen,		2 c.
-------------	--	------

Varnish—

Neumeublen,	5 brls.	
-------------	---------	--

White Lead—

Copenhagen,	1 t.	2 c.
Montreal,	22	2

GOOLE.

Week ending June 2nd.

Alkali—			
Antwerp,		12 cks.	
Chemicals (otherwise undescribed)			
Amsterdam,		20 cks.	
Coal Products (otherwise undescribed)			
Amsterdam,		1 ck.	
Antwerp,		3	
Boulogne,		2	6 pks.
Ghent,		2	
Hamburg,	24	1 cs.	
Rotterdam,		52	
Manure—			
Hamburg,	479	bgs.	
Pitch—			
Antwerp,	126 t.		
Dunkirk,	528		
GRIMSBY.			
Week ending June 5th.			
Caoutchouc—			
Gothenburg,	4	bls.	
Port au Prince,		1 cs.	
Chemicals (otherwise undescribed)			
Dieppe,	2	cks.	
Port au Prince,	60 t.	138 dms.	
Coal Products (otherwise undescribed)			
Dieppe,	80 cks.	1 cs. 34 brls.	
		2 kgs.	
Hamburg,	2	1	
Malmo,	15	cks.	

PRICES CURRENT.

WEDNESDAY, JUNE 16TH, 1897

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary

Acids:—		£ s. d.
Acetic, 25 % and 40 %	per cwt. 5/10½ & 8/9	
Glacial	40/-	
Arsenic S.G., 2000	per lb. 1 4 0	
Fluoric	per lb. 0 0 3½	
Muriatic (Tower Salts), 30° Tw.	per bottle 0 0 10	
(Cylinder), 30° Tw.	0 3 0	
Nitric 80° Tw.	per lb. 0 0 1½	
Nitrous	0 0 1¾	
Oxalic	nett 0 0 3½	
Phosphoric, 1750°	0 0 11½	
Picric	0 0 11	
Sulphuric (fuming 50 %)	per ton 15 10 0	
(monohydrate)	5 10 0	
(Pyrites, 168°)	3 0 0	
150°	1 5 0	
(free from arsenic, 145°)	1 7 6	
Sulphurous (solution) S.G. 1025	3 0 0	
Tannic (pure)	per lb. 0 1 2½	
Tartaric	0 1 1	
Arsenic, white powdered	nett per ton 22 7 6	
Alum (loose lump)	4 10 0	
Alumina Sulphate (pure)	4 2 6	
Aluminoferic	2 3 6	
Aluminium (Ingot metal 98/99½ %)	nett per cwt. 7 17 6	
Ammonia, Anhydrous	per lb. 0 1 3	
880=28° B.	0 0 2¾	
=24° B.	0 0 1¾	
Carbonate	nett 0 0 3	
Muriate	per ton 18 5 0	
(sal-ammoniac) 1st & 2nd	per cwt. 33/- & 31/-	
Nitrate	per ton 32 0 0	
Phosphate	per lb. 0 0 4½	
Sulphate (grey) London	per ton 7 10 0	
(grey) Hull	7 10 0	
Aniline Oil (pure)	per lb. 0 0 6¾	
Aniline Salt	0 0 6	
Antimony	per ton 30 15 0	
(tartar emetic)	per lb. 0 0 9	
(golden sulphide)	0 0 10	
Barium Chloride	per ton 6 12 6	
Carbonate (native)	3 10 0	
Sulphate (native levigated)	42/6 to 65/-	
Bleaching Powder, 35 %	nett 6 7 6	
Liquor, 7 %	3 10 0	
Bisulphide of Carbon	12 0 0	
Chromium Acetate (crystal)	per lb. 0 0 6	
Calcium Chloride	per ton 2 2 6	
China Clay (at Runcorn) in bulk	15/- to 30/-	
Coal Tar Products and Dyes:—		
Alizarine (artificial) 20 %	nett per lb. 0 0 6¾	
Magenta	0 3 9	
Anthracene, 30 % A, f.o.b. London	per unit per cwt. 0 0 6½	
Benzol, 90's	per gallon 0 1 10	
50/90	0 2 0	
Carbolic Acid (crude 60°)	per gallon 0 2 5	
(crystallised 40°)	per lb. 0 0 7¾	
(liquid 95/97 %)	per gallon 0 1 1	
Creosote (ordinary)	0 0 2	
(filtered for Lucigen light)	0 0 2½	
Crude Naphtha 30 % @ 120° C.	0 0 11	
Grease Oils, 22° Tw.	per ton 2 15 0	
Pitch, f.o.b. Liverpool or Garston	1 2 0	
Solvent Naphtha, 90 % at 160°	per gallon 0 1 7½	
Copper	per ton 49 0 0	
Sulphate	16 5 0	
Oxide (copper scales)	44 10 0	
Glycerine (crude)	31 0 0	
(distilled S.G. 1250°)	62 0 0	
Iodine	nett, per oz. 0 0 7½	
Iron Sulphate (copperas)	per ton 1 10 0	
Sulphide (antimony slag)	2 0 0	
Lead (sheet) for cash	13 2 6	
Litharge Flake (ex ship)	14 15 0	
Acetate (white)	22 0 0	
brown	15 0 0	
Carbonate (white lead) pure	16 15 0	
Nitrate	19 0 0	
Lime, Acetate (brown) (ex ship)	per ton 5 2 6	
(grey) (ex ship)	8 5 0	
Magnesium (ribbon and wire)	per oz. 0 2 1	
Chloride (ex ship)	per ton 2 10 0	
Carbonate	per cwt. 1 17 6	
Calcined Magnesia	per ton 9 0 0	
Sulphate (Epsom Salts)	per ton 2 15 6	
Manganese, Sulphate	16 0 0	
Borate	per cwt. 2 10 0	
Ore, 70 %	per ton 3 10 0	
Methylated Spirit, 61° O.P.	per gallon 0 1 8	
Naphtha (Wood), Solvent	0 2 8	
Miscible, 60° O.P.	0 3 3	
Oils:—		
Cotton-seed	per ton 15 10 0	
Linseed	16 10 0	
Stearine	per ton 19 10 0	
Phosphorus (yellow)	per lb. 0 2 2	
(red)	0 2 8	
Potassium (metal)	per oz. 0 3 7	
Bichromate	nett per lb. 0 0 4½	
Carbonate, 90% (ex ship)	per ton 16 12 6	
Chlorate	per lb. 0 0 4	
Cyanide, 98%	0 0 10½	
Hydrate (Caustic Potash) 90 %	per ton 24 0 0	
(Caustic Potash) 75/80 %	20 15 0	
(Caustic Potash) 70/75 %	19 15 0	
Nitrate (refined)	per cwt. 1 1 6	
Permanganate	per cwt. 3 15 0	
Prussiate Yellow	per lb. 0 0 1½	
Sulphate, 90 % (ex ship)	per ton 9 15 0	
Muriate, 80 % (do.)	8 10 0	
Silver (metal)	per oz. 0 2 3½	
Sodium (metal)	per lb. 0 2 11	
Carb. (refined Soda-ash) 48 %	nett per ton 4 15 0	
(Caustic Soda-ash) 48 %	4 5 0	
(Carb. Soda-ash) 48 %	4 0 0	
(Alkali) 58 %	3 17 0	
(Soda Crystals)	2 5 0	
Acetate (ex-ship)	12 5 0	
Arseniate, 45 %	14 7 6	
Chlorate	per lb. 0 0 4½	
Borate (Borax)	net, per ton 16 0 0	
Bichromate	per lb. 0 0 3½	
Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton	0 0 0	
(74 % Caustic Soda)	8 2 6	
(70 % Caustic Soda)	7 2 6	
(60 % Caustic Soda)	6 2 6	
(pure liquor 90° Tw.)	3 12 6	
77/78 % powdered (99 % hydrate)	12 15 0	
Bicarbonate	6 10 0	
Hyposulphite	5 0 0	
Manganate, 25 %	15 0 0	
Nitrate (95 %) ex-ship Liverpool	per cwt. 0 7 6	
Nitrite, 98 %	per ton 30 0 0	
Phosphate	11 0 0	
Silicate (glass)	per ton 4 10 0	
(liquid, 100° Tw.)	3 10 0	
Stannate, 40 %	per cwt. 3 2 9	
Sulphate (Salt-cake)	per ton 0 19 0	
(Glauber's Salts)	1 7 6	
Sulphide	6 15 6	
Sulphite	5 0 0	
Strontium Hydrate, 100 %	3 0 0	
Sulphocyanide Ammonium, 95 %	per lb. 0 0 6½	
Barium, 95 %	0 0 4½	
Potassium	0 0 6½	
Sulphur (Flowers)	per ton 7 10 0	
(Roll Brimstone)	6 10 0	
Brimstone: Best Quality	4 12 6	
Superphosphate of Lime (26 %)	2 5 0	
Tallow	per lb. 18 0 4	
Tin Crystals	per lb. 0 0 4½	
English Ingots	per ton 65 10 0	
Zinc Spelter	17 5 0	
Chloride (solution, 100° Tw.)	4 17 6	
Sulphate, Crystal	5 2 6	

THE HEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

Publishing Offices: 32, BLACKFRIARS STREET, MANCHESTER.

527.

SATURDAY, JUNE 26, 1897.

Vol. XX.

Contents.

PAGE	PAGE
CS	425
Petroleum from U.S.A.	426
Inquiry	426
List	427
Latest Complete Speci-	427
n of Sewage	427
g of Technology	428
g of Fertilisers	428
ture of Dynamite	429
he Royal Show	430
herton and Co. and	431
loves	431
Tar and Ammonia Products	432
Miscellaneous Chemical Market ..	432
The Metal Markets	432
Report on Manure Material	432
Liverpool Oil and Colour Market ..	432
Hull Paint, Oil, and Colour Report ..	432
West of Scotland Chemicals	433
Tyne Chemical Report	433
New Companies	433
Gazette Notices	433
Imports	433
Exports	436
Prices Current	440

Notices.

Communications for the *Chemical Trade Journal* should be sent to **DAVIS BROS., 32, Blackfriars Street, MANCHESTER.**

Our Registered Telegraphic Address is—

"Expert, Manchester."

NATIONAL TELEPHONE 3060.

Terms of Subscription, commencing at any date, to the *Trade Journal*,—payable in advance,—including postage of the world, are as follows:—

Half-yearly (52 numbers) 12s. 6d.
Yearly (26 numbers) 6s. 6d.
Quarterly (13 numbers) 3s. 6d.

Subscribers are invited to forward items of intelligence, or cuttings from newspapers, of interest to the trades concerned.

Contributors will oblige by making their remittances for subscriptions by Post Office Order, crossed and payable to "Davis Bros."

Communications for the Editor, if intended for insertion in the next week's issue, should reach the office not later than **Tuesday**.

Reports, and correspondence on all matters of interest to the chemical and allied industries, home and foreign, are solicited. Contributors should condense their matter as much as possible, to fill one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be on separate sheets.

Advertisements.

Advertisements of Situations Vacant, Premises for Sale or To be Let, and Wants, and Specific Articles for Sale by Private Contract are taken in the *Chemical Trade Journal* at the following rates:—

10 Words and under 2s. 6d. per insertion.
Each additional 10 words 6s. 6d. "

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

10 Words and under 1s. 6d. per insertion.
Each additional 10 words 3s. 6d. "

Advertisements, Announcements in the Directory Columns, and all Advertisements prepaid, are charged at the Tariff rates, which will be forwarded on request.

Advertisements intended for insertion in the current week's issue should reach the office by **Thursday morning** at the latest.

CURRENT TOPICS.

THE MYSTERIES OF TECHNICAL EDUCATION.

NOT unnaturally those who are not possessed with the comfortable spirit that accepts all things for what they are supposed to be, are constantly on the look out for further enlightenment on the things which are not quite clear to them; and so it is with many who are interested in, and have hopes of technical education. The Congress of last week led to the announcement of much helpful information, but as far as technical education as understood by us is concerned, the position is not much better than it was. Still it is a little better in that the difficulty of the situation has been made quite clear, and even this was not too well defined heretofore. The numerous statements that have been made in the last ten years have led us to ask, on more than one occasion, What is technical education?

After much weeding at first and no little pruning as the plant grew, we thought we had arrived at a logical estimate of true technical education, and the utterances of Professor Sylvanus Thompson show that we are not alone in our conception of the matter.

The difficulties that surround those who favour what we think may be called the opposite school of thought are very plainly and pointedly emphasised by the remarks of Sir Philip Magnus, which appear on another page of this issue. He does not attempt to shirk the incongruity between the somewhat laudable aims of certain champions of technical education and the orders of the Act under which they seek to work. Their object is to make proficient workmen. To do this there must be opportunity of practising the crafts under perfect conditions that allow of the practical application of theory. Sir Philip enjoins this, although he admits the fact that trade practice was formerly held to be best acquired in the shop. In other words schools must be fitted so that pupils can become proficient in the accurate practice of a craft, though of course the articles made are not produced with a view to the production of saleable commodities. But if the pupils are made "intelligent" workmen what is that but teaching them a trade? Yet the Technical Instruction Act absolutely forbids even the practice of any trade being taught. This being so one is forced to ask if technical instruction, as conceived by those who favour the provision of model workshops, is education in a true and legitimate sense. We commend this point to the attention of those who have indefinite ideas regarding the true aims of the present specialised educational movement.

THE STANDARD OIL CO. OWNS UP.

The Standard Oil Company of New York has at last decided to abandon the fiction it has sought to keep up so long, and instead of pretending that the thirty separate organisations which it controlled as the Oil Trust, under the

trading name of the Standard Oil Company, were independent affairs, has boldly defied all the threats of Anti-Trust legislation and announced them as one corporate union, with a capital that is to be raised to 40 millions sterling.

This is a change of front that is at least satisfactory, but it is coupled with a rumour that an amicable agreement is to be arranged between the Rothschilds and Nobels, who control the Russian oil supplies.

This rumour has been spread so often that it needs ample confirmation before it can be accepted. We are inclined to think the wish is father to the thought, as it has been in the past, and that this report is another of the Standard Oil Company's little jokes to be used to unsettle and mystify as much as possible, and laughed away when its existence becomes inconvenient.

From what we can learn of the feeling in Russia regarding such an amalgamation there is but a remote chance of the statement being true.

It is something, however, that the Standard Oil Company should think fit to own up to what has so long been contended by outsiders. It seems almost like the first step towards raising its commercial methods to the customary standard of business ethics, and if it is so we would wish to be among the first to acknowledge and commend the gracious act, whatever our opinions may be on other points. Tardy reparation is better than none at all, and there is yet ample time to shame the devil with the proverbial weapon. We would that our conjectures were confirmed.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Washington, gives the following returns of the exports of petroleum and petroleum products for April, 1897. The total shipments were 68,434,629 gallons, compared with 65,997,339 gallons in 1896. The total for the ten months ending April, 1897, was 782,639,427 gallons, against 716,674,313 gallons during the same period in 1896. The details of the shipments are as follow:—

CRUDE PETROLEUM.		Gallons.
Total, April, 1897	11,852,472	
" " 1896	8,063,139	
NAPHTHAS.		
Total, April, 1897	269,066	
" " 1896	59,914	
ILLUMINATING.		
Total, April, 1897	52,094,744	
" " 1896	53,343,457	
LUBRICATING AND PARAFFIN.		
Total, April, 1897	3,796,625	
" " 1896	4,487,653	
RESIDUUM.		
Total, April, 1897	421,722	
" " 1896	43,176	

PATENTS AND INVESTORS—An expert in finance, who is also a patent agent, warns provincial investors to be very chary of putting their money into companies whose prosperity is dependent upon monopolies secured by patents. No matter how prodigious the prosperity of a business protected by patents may be, the vital point for investors to consider when a company with huge capital is formed is how many years the patents have still left to run. The lifetime of a patent in England is nominally five years, but actually, by renewals, it lasts for fourteen years. The investor, therefore, who is asked to put his money into a concern dependent on a patent which may only have seven years to run, must take into consideration that at the expiration of seven years anybody or everybody may manufacture the patented article. Even to get back £100, invested in such a company—without any profit—dividends of over 14 per cent per annum for seven years would be necessary. This warning seems necessary in view of the fact that, during the past two or three years, millions of money have been invested in companies to work expiring patents.

THE SNAEFELL INQUIRY.

THE adjourned inquiry into the accident at the Snaefell Mine of Man (*vide C. T. J.*, 523, p. 366) was concluded last week after a sitting of ten hours. There was considerable friction at times in the proceedings, owing to a feeling that certain of the jurors were prejudiced.

Counsel representing the families of the deceased men also wished to cross-examine Capt. Kewley on the complaints made by Dr. Foster in 1882, 1883, and 1885 as to the ventilation of the mines, but counsel for the directors objected to matters so far back being gone into.

The Coroner upheld the objection.

Examined as to the condition of the mines in late years, Capt. Kewley said it had been good ever since an upcast shaft had been provided in August, 1895. In July that year he had known a candle to go out in the bad air of the shaft owing to want of ventilation.

Dr. Haldane, Lecturer on Physiology at Oxford, gave evidence of the result of his analysis of the blood of mice lowered into the mine the second day after the accident, and of sample bottles of the gas which Inspector Williams nearly lost his life. He said the blood of the mice when diluted with water showed that the haemoglobin was impregnated with 78 per cent. of carbon monoxide. The composition of the air in the bottles was—oxygen, 15.48; carbon dioxide, 4.32; carbon monoxide, 1.07; hydrogen, 0.48; nitrogen and other gases, 78.75. The composition of this sample corresponded with a mixture produced by the combustion of wood or other similar material. A mixture of gas of this composition would produce helplessness in man within seven or eight minutes at most, and would soon cause death. A candle would not burn in such air, but would just do so on the surface of a third its volume of fresh air. The mixture would then be highly poisonous, and would still be dangerous to life if diluted with four times its volume of fresh air; and when diluted with nine times its volume of fresh air it would still be capable of rendering a man incapable of exertion. One of the effects of the gas was that unconsciousness followed more quickly on exertion. It was possible that a man might be conscious in the gas and recover on being brought to the surface.

Dr. Foster was the next witness. He produced the report made to him by Inspector Williams on the 7th May, three days before the disaster. This report stated that the ventilation was very defective. Proceeding with his evidence, Dr. Foster said the discovery that had existed proved that he was correct in his original supposition as to the origin of the disaster. In his opinion, the most likely cause of the disaster was a candle-end left burning when stuck against the timber. Speaking of the appliances available for hoisting the rescued men from the mines after the disaster, he said he did not think them adequate. He thought it wicked that in these days men should have to die and down ladders, as in this mine, and be wholly dependent on the kindness of the men in the case of an accident to the shaft and injury to the men. A cage been in use, only the men going down first would have been sacrificed in the poisonous air.

John Henry Clague deposed that he worked on the Saturday after the disaster in renewing the timbering in the 130 level, where it was now seen to have occurred. When he and his two fellows were there there was no fire. He had worked two years in the mines, and the state of the ventilation. In the summer months it was difficult at times to keep the candles from going out both in the mine and in the shaft. The bad condition of the air was a general complaint in the summer months. Some of the men would leave the mine in the summer on account of the ventilation, and come back in winter when the air was better. He did not make any complaint to the mine manager. They did not complain because they saw no possible means of better things remedied.

The Coroner complimented witness on the straightforward manner in which he had given his evidence.

The Coroner, in summing up, briefly referred to the disaster and said that of the £3,500, needed to provide for the bereaved relatives, he estimated that £3,000 had been received.

The jury gave their verdict after half an hour's consultation. They found that the death of the men was the result of breathing air impregnated with carbon monoxide, which was generated by the decay of timber, but that as to how the timber ignited there was no evidence to show. They strongly recommended the adoption of the suggestions by Dr. Foster for the prevention of the recurrence of the lamentable event, namely, the use of non-inflammable roof timbers, mechanical means for raising and lowering of the men, and especially for the inspection of the mines prior to the men commencing work. They also recommended periodical inspection of the upcast shaft not only by the officials of the mine, but by Her Majesty's inspectors. They further took the opportunity of placing on record their admiration of the courage and perseverance displayed in the rescue of the men and bodies by the mine inspectors, the captain, and the men who formed the relief parties.

The Patent List.

is compiled from Official sources in the Manchester Laboratory, under the immediate supervision of Davis and Alfred R. Davis, who report professionally the of Chemical Patents.

CATIONS FOR ENGLISH LETTERS PATENT.

ing Machines, etc. J. Cooke. 13,948. June 8.
nsoluble Gums soluble. M. von Schmidt. 13,962. June 8.
des, etc. W. Turner. 13,997. June 8.
Calcium Carbide Furnace. R. Memmo. 14,002. June 8.
ogwood Colouring Matters. E. J. and C. S. Bedford. 14,043.
Compounds and their application to the Treatment of Leather.
villott. 14,052. June 9.
its in Treating Sewage. W. J. Lomax and T. Aspinall. 14,058.
Drying Apparatus. H. H. Wing. 14,059. June 9.
ather. C. J. Dunn. 14,076. June 9.
paratus and Medium. A. J. Boulton. 14,098. June 9.
F. Volpert. 14,196. June 10.
for Preventing Boiler Incrustation. L. Lewis. 14,226. June 11.
or Refining Fats and Oils. J. Davidson and C. G. Hepburn.
June 11.
oap. L. Grote. 14,241. June 11.
utta Percha. H. E. Serullas. 14,267. June 11.
t of Portland Cement. A. Patrick. 14,295. June 12.
st Furnace Slag for use in Cement, Mortar, etc. A. D.
4,299. June 12.
nd Disinfecting Fibrous Materials. V. Floquet and L. Bonnet.
June 12.
ag for Tin-ore and Smelting. C. C. E. Bohne. 14,352. June 12.
bstitutes. J. E. T. Woods. 14,328. June 12.

ACTS OF LATEST COMPLETE SPECIFICATIONS.

tracts are specially prepared for the Chemical Trade Journal, RIGHTS of publication are RESERVED. This is the earliest abstracts of Chemical and allied patents accessible to the

or Turning Faecal Matter into Manure and for Disinfecting
losets. R. Tuggener, 4, Gerechtigkeitsstrasse, Zurich. Eng. Pat.
July 20, 1896.

nt is essentially mechanical. A chemical powder is used
nent of the faeces, but no mention is made of its composi-
e six figures illustrating the mechanical portions of the
brief, it may be said that a mixing box provided with mix-
ing rolls is placed below the closet, the waste pipe dis-
o it. A hopper-shaped reservoir for the chemical composi-
also fixed so as to discharge into the mixing rolls. Under
a collecting box, in which the liquid portions are drained off
of a clear and innocuous liquid. By a simple lever and gear
t, operated by the hinged seat of the closet, the mixing rolls
while a quantity of the chemical compound is automatic-
ged on to the faeces delivered on to the rolls from the waste
contents of the collecting box are removed periodically,
te a dry manure.

tespirator or Protective Device for Preventing the Inhala-
Smoke and other Noxious Gases or Vapours. C. A. A. Miller,
berlin-street, Syracuse, New York. Eng. Pat. 5,512. March 2nd,

irator consists of a mask made of fire-proof material fitted
stic back, which fits tightly over the head and under the
covering the whole of the face. A strap passing round the
head helps to keep the whole in position. In the front is
e on the level of the eyes, and opposite the mouth a per-
containing a sponge or other filtering medium. There are
No exit valve is provided, the air being inhaled and ex-
gh the one opening.

nts in the Manufacture and Production of Water Glass,
uable Bye-products of the said Manufacture. H. Pope,
m, Germany. Eng. Pat. 14,953. July 6, 1896.

ess consists of mixing silicic acid with a reducing agent and
salt and treating with vitriol. The bye product is collected
idue fused to yield water glass. Thus sand, rock salt, and
e ground together and heated by waste gases in a muffle
nace. Sulphuric acid is then added. Hydrochloric acid is
a comparatively low temperature. The last of the acid is
at 200°C., and the mass transferred to a melting furnace and

fused to water glass. The charcoal may be replaced with sawdust or
peat saturated with brine. Sulphuric acid may be applied in the form
of bisulphates. It is possible to obtain chlorine by using rock-salt and
saltpetre. The nitric and hydrochloric acids given off are treated in the
usual way, charcoal being added to the residue and treated as before.
Methods for obtaining nitrobenzene and naphthalene are also described.
When the preparation of hydrochloric acid only is aimed at waste acid
from the refining of oil can be used, as the organic matter it contains
is beneficial, serving partly to replace the charcoal used.

Improvements in the Manufacture of Carbides of the Earth-metals and
Alkali-earth Metals. L. M. Bullier, 12, Avenue d'Orleans, Paris. Eng.
Pat. 16,255. July 29, 1896 (under International Convention Dec. 28 1895).

This is a modification of patent 2,820/95 (C.T.I., 457, p. 131).
With a view to increasing the production and facilitating the operation
of obtaining carbide of lime from quicklime and carbon, fluor spar is
introduced as a fluxing material, which, while reducing the temperature
of the reaction, also yields the product in the form of a fluid bath that
can be run off easily, thus enabling the process to be made continuous.
About 10% of fluor spar answers the purpose. Other fluxes, can of
course, be used when desirable. The process is not limited to the pro-
duction of calcium carbide, but applies to all other carbides of the earthy
and alkali-earth metals.

THE FILTRATION OF SEWAGE.

IN the course of his last report to the Ribble Joint Committee, the
Chief Inspector (W. Naylor, Esq.) makes the following special
reference to the possibility of the efficient treatment of sewage by arti-
ficial filtration as compared with land filtration:—

"With respect to the comparative value of land filtration and arti-
ficial filtration, comparisons in this case, if not odious, are at any rate
difficult to draw.

"Turning to the published and recorded results of examinations of
effluents made in the Committee's area, I find that the average condition
of artificial filter effluents is better than that of those from land filtra-
tion. Further, the percentage of good effluents is greater in the former
than in the latter case. But the *prima facie* conclusion is hardly reli-
able. There is land and land, there are artificial filters and artificial
filters.

"Sewage farms vary greatly in the facilities they offer to the manage-
ment for proper sewage treatment, and the management varies also in
its mode of taking advantage of these facilities. The farm may be dead
flat as at Wigan, or a precipitous slope as at Blackrod; a clay subsoil
as at Blackburn, a loamy soil as at Ormskirk, marly as at Rishton, or
a swamp as at Pemberton.

"It may be duly terraced and underdrained as at Clitheroe, or left
a hilly stubble as the Brinscall portion now under sewage; the effluent
or sewage may be carefully gauged and distributed periodically as at
Burnley Wood End, or all crowded into one sickened patch as at
Leyland.

"It has been in all probability experiences with such an uncertain
condition of affairs as this that have driven many Local Authorities
within recent years to the adoption of artificial filters, on which the
action (in the case of coke breeze and the like at any rate) is essentially
the same so far as purification is concerned, but where the area is of
convenient size and form for manipulation, and where a medium is
provided that can be saturated without becoming slimy, and which
offers a greater surface contact than land in its natural condition.

"That such a filter will produce a satisfactory effluent there is no
doubt; but comparisons can only be drawn after considering the puri-
fication effected upon sewage of known composition per unit of filter
space, or area of land of known composition, other conditions of time,
temperature, &c., being the same.

"The results from filters that are mainly mechanical rather than
mainly biological (such as polarite, magnetite, &c.) have also been good.
In such cases, however, both the quantity of sewage treated and the
degree of purity attained depends largely upon the cleansing appliances
and labour expended upon them.

"To conclude, my experience is convincing that very satisfactory
effluents are produced by artificial filters; whether they are produced
more or less economically than by land depends upon conditions which
vary in every instance, and which cannot be summarised easily so as to
apply generally."

EXPLOSION OF NAPHTHA AT SEA.—While the Dutch steamer *Cale-
donia* was on a voyage from Newcastle to Rotterdam, some casks of
naphtha exploded, blowing off the hatches, killing the donkey man, and
doing such damage that the sea poured into the vessel. It subsequently
foundered thirty miles off Spurn Head. Fourteen of the crew were
brought to Hull by another vessel.

THE TEACHING OF TECHNOLOGY.

AT the Wednesday and Thursday sittings of the International Congress on Technical Education, held in London last week, Sir P. Magnus, of the City and Guilds of London Technical Institute, communicated a paper on

THEORY AND PRACTICE IN TRADE TEACHING,

in which he said the difficulty of determining the true relation of theory and practice in teaching the technology of any trade was shown by the regulations of the Science and Art Department, which applied to the teaching of science in its bearing upon trades, and in the Technical Instruction Act, which expressly forbade the teaching of the practice of a trade in any technical school. But in the great majority of industries the practice of the trade was best acquired in the factory and shop, and the instruction of the technical school should be supplementary only to the experience obtained in commercial work. By this principle nearly all our technical classes were regulated. Nevertheless, in many of these classes something that approximates very closely to the teaching of a trade is recognised as necessary. The difference, more or less clearly defined, is, however, sufficiently marked to distinguish the practice of the shop from that of the trade school.

Although a technical school might be equipped almost as completely as a trade shop the equipment served a very different purpose. Its object is the production of intelligent workpeople, and not the production of saleable commodities. The practice a student obtains in a technical school was intended to enable him to understand appliances of his trade, and to use them with care and judgment. It is now recognised that, whilst what might be called trade practice might be best acquired in the shop, the application of the theory must be taught in school, and that a sufficiency of tools and appliances was needed for this purpose.

The teaching of the theory of any trade must be made to illustrate the practice, just as the practice must be made to illustrate the theory.

In another paper, Professor Silvanus P. Thompson, F.R.S., in dealing with the need for

REFORMS IN ORGANISATION

in connection with the teaching of technical education, said the first reform needed was to get rid of the misuse of the term whereby it was applied to various kinds of education about which there was nothing technical whatever. Education was technical only so far as it was directed to the training of the individual in and for his business in life. The statistics sometimes paraded to show how many hundreds or perhaps thousands of students were receiving evening-class instruction in chemistry, for example, gratifying as they might be, had really nothing to do with technical education or the development of the chemical industries of the country. One thoroughly highly-trained research chemist was worth them all. What provision was made on the Continent for this higher training in chemistry might be seen from the fact that the entire establishment of the Regent-street Polytechnic, chemical laboratory, gymnasium, swimming bath, theatre, kinematograph, and all, might be accommodated within the space provided for the chemical laboratory alone in the polytechnic at Munich. The chemical laboratory of the polytechnic at Zurich exceeded in contents the whole of the technical schools at the People's Palace. The chemical laboratory of Berlin was larger than the whole building of the City of London College. The physics laboratory at Zurich was considerably larger than the whole building of the Finsbury Technical College, and the cost nearly twice as much.

After observing that in many cases the best work had been done in monotchnic rather than in polytechnic schools, he said it was necessary to discriminate between education which was purely secondary on the one hand, and that which was purely university on the other hand, as against that which was truly technical. It would be an evil day if ever the technical institutes, whether monotchnic or polytechnic in type, neglected their proper work and took to "preparing" their students for University degrees. Following the example of Germany we ought to make the serious instruction of the day classes accessible to all by its cheapness, while excluding the incompetent by entrance examinations suitable to the standard attained in our existing secondary schools.

FIRE AT A PAPER MILL.—A fire, which was attended by serious injury to life and property, broke out at the Star Paper Mills, Feniscowles, near Blackburn, on Saturday evening last, and burnt until Sunday night. The Blackburn and Darwen fire brigades quickly arrived and played incessantly upon the flames. A machineman, who failed to leave the premises before the situation became dangerous, fell through a skylight, and was so seriously injured that it was deemed necessary to convey him to the hospital. A fireman named Hutchinson narrowly escaped being killed by a falling wall. Those portions of the mill which contained the most valuable property, including the largest paper-making machine in the world, were saved. The damage is estimated at £25,000, and 300 workpeople are thrown out of employment.

THE SAMPLING OF FERTILISERS.

SOME time back reference was made to the sampling of fertilisers and feeding-stuffs under the Act of 1893. The Board of Agriculture have now issued the following regulations, which will come into force on July 1st prox. The definitions given in the Act concerning buyers, sellers, etc., apply to the following regulations:—

Appointment of Agent.—An appointment of an agent by the buyer may be in the schedule Form A., or in a form to the like effect; and the provisions of these regulations relating to a buyer shall apply to an agent appointed by the buyer for the purposes of the above-mentioned Act.

Proceedings by Buyer to Procure Samples.—When the buyer of less than half-a-hundredweight of a fertiliser, or of any quantity of feeding stuff, desires to have the same analysed in pursuance of the fifth section of the above Act, he is, within ten days after delivery of the article to him or receipt of the invoice, whichever is later, either give notice to the seller that he intends to take samples of the article himself, or to give notice in writing to the district analyst or authorised representative, stating that he desires that the samples shall be taken by the district analyst or authorised representative, as the case may be.

Regulations as to Samples taken by Buyer.—When the buyer intends to take the samples himself, he is to give at least three days' notice in writing of such intention to the seller, with particulars as to the place, day, and hour, of sampling. If the seller does not attend, the samples are to be taken in the presence of a witness, who is to initial the sample. The buyer is forthwith to deliver or send by post to the district analyst, one of such samples, with the invoice or a copy thereof, and also, in the case of a feeding stuff, any circular or advertisement of the seller descriptive of the article to be analysed, which the buyer wishes the district analyst to consider in making his analysis and giving his certificate. One of the remaining samples is to be delivered or sent by post to the seller, and the other is to be retained by the buyer.

Samples taken by District Analyst or authorised Representative.—When the buyer or the seller desires that the samples shall be taken by the district analyst or authorised representative, he is to give notice in writing to that effect to the district analyst or authorised representative as the case may be. Such notice is to contain the names and addresses of the buyer and the seller, and such particulars as may be necessary to enable the district analyst or authorised representative to identify the article to be analysed, and may be in the schedule Form B., or in a form to the like effect. A copy of any such notice given by the seller is to be sent at the same time to the buyer. The district analyst or authorised representative, as the case may be, is to give at least three days' notice in writing to the seller and to the buyer, as to the place, day, and hour of sampling, to enable them to be present at the sampling, if they so desire. One of the samples taken by the district analyst or authorised representative is to be retained for the use of the district analyst in making this analysis, another delivered to the seller, and the third delivered or sent to the buyer. Notice or sample required by these regulations to be given or sent to the district analyst or authorised representative to the buyer or seller, may be sent by post to the respective names and addresses as in the notice to be given under clause 4 above. The district analyst or authorised representative, as the case may be, is, at or before the time of sampling, to be supplied by the buyer with the invoice or a copy thereof, and also in the case of a feeding stuff, with any circular or advertisement of the seller descriptive of the article to be analysed, which the buyer may wish the district analyst to consider in making his analysis and giving his certificate. The district analyst or authorised representative is to provide any receptacle or other thing required for the samples.

GENERAL REGULATIONS FOR TAKING SAMPLES.

Fertilisers.—When the fertiliser is delivered in bags or other packages, a number of bags or packages are to be selected as follows:

Not less than 2 bags or packages where the quantity does not exceed 1 ton.

Not less than 3 bags or packages where the quantity does not exceed 2 tons.

Not less than 4 bags or packages where the quantity does not exceed 3 tons.

And one additional bag or package for every additional ton or part thereof; provided that in no case need more than 10 bags or packages be selected.

The selected bags or packages are to be emptied separately on clean dry stone or wooden floor, worked up with a spade, and spadeful from each set aside. The separate spadefuls are then thoroughly mixed and any lumps broken up by the hand or spade. From this mixture three samples, each from $\frac{1}{4}$ lb. to 1 lb. in weight, are to be taken and carefully and securely packed.

When the fertiliser is delivered in bulk, then, in like manner,

to be taken from different parts of the fertiliser, and mixed together, and the samples taken from a portion of ure.

The fertiliser consists of bulky material, uneven in character to get matted together, such as shoddy, wool refuse, hair, and so on, are to be taken from the selected bags or packages, or different parts of the fertiliser, if in bulk, the matted portions torn to pieces, and the whole mixed as above directed, but no sample is to be less than 1 lb. in weight.

Alternative method, where neither the seller nor the buyer objects thereto, samples of a fertiliser delivered in bags or packages may be taken by a sampling pale or spear or pipe or shank, which shall not be less than twenty-four inches in length, and six inches in diameter. The total quantity so abstracted for the sample shall be not less than five pounds where the quantity of the fertiliser does not exceed five tons, and not less than ten pounds where the quantity exceeds five tons, and shall be drawn from at least double the number of bags or packages required to be selected under the foregoing conditions.

Stuffs.—When the feeding stuff is in the state of meal or is to be sampled in the same manner as prescribed for.

When the feeding stuff is in the state of cake, a number of samples are to be selected as follows:—

More than 3 cakes where the quantity does not exceed 1 ton.

5	"	"	"	5 tons.
10	"	"	"	exceeds 5 tons.

Selected cakes are to be broken into small pieces such as could pass through a half-inch sieve. These pieces are to be thoroughly mixed, and from the mixture three samples, each not less than 1 lb. in weight, are to be taken.

Case of a feeding stuff, if any appreciable portion be mouldy, or otherwise unsuitable for feeding purposes, or if cakes be full of holes, or have cotton or hair attaching to them, separate samples are to be taken of such portion or cakes and of the residue of the feed.

An estimate is to be formed as to the proportion of the feed represented by each sample.

The feeding stuff is in a fluid or semi-fluid condition, three samples are to be selected, and a portion taken from each. The portions are then to be well mixed together in a clean vessel, and samples taken therefrom as in other cases.

GENERAL DIRECTIONS.

In case the sampling is to be done as quickly as is possible with due care, and the material is not to be allowed to remain any longer than is absolutely necessary.

Selection of the person taking the samples is to obtain samples representing the bulk from which they are drawn, and, therefore, the cake, or cake is to be selected which has apparently been in the possession of the buyer.

A sample is to be packed in a dry, clean bottle, or jar, or (except in the case of a fertiliser) in a dry, clean tin, or in some other suitable container, so that the original composition of the fertiliser or feeding stuff be preserved.

Samples are to be so packed and secured that they cannot be tampered with, and are to be sealed and initialed by the person taking them. They may also be sealed by the buyer and the seller, if so desiring. Each sample is to be marked with the name of the sample, the date and the place of the sampling, and with some identifying number.

Sealing as to Samples sealed by Seller and Buyer.—Where any sample is taken in the presence of, and sealed by, the seller as well as the buyer, such samples are to be deemed, as between the buyer and seller, to have been taken in accordance with these regulations.

ADULTERATION OF FOOD.—In the House of Commons this morning, Mr. Balfour, in reply to Mr. Jeffreys, said he was unable to fix the date of the introduction of the Bill dealing with the adulteration of food, but he hoped it would be at no distant period, probably within the week after.

WINDING-UP PETITIONS.—On a creditor's petition for winding up of *(Morcau-Ray) Syndicate, Limited*, an application was made on behalf of the directors for a stay in order that an arrangement might be made with creditors. The nominal capital of the company was £60,000. The petition was allowed to stand over until after the meeting of shareholders. *The Patent Wire-Wove Waterproof Paper Company, Limited.*—Messrs. Farquharson Brothers and Co., directors and holders of dishonoured bills of exchange. All the shares of the company being covered by the debenture bonds, the directors asked the leave of the court to withdraw their petition. The court was given subject to the production of an affidavit stating that the directors are not receiving any part of their debt or costs.

THE MANUFACTURE OF DYNAMITE.

(Concluded from page 412.)

Storing.—From the wash-house, the nitroglycerol may be allowed to flow at once into the storage tanks, which are in a separate building. In America, where there is no limit placed on the amount of nitroglycerol which may be stored, or the length of time it may be kept, no filtering or drying process is necessary. There should be several tanks in the storehouse, and the nitroglycerol should stand twenty-four hours before being mixed with the absorbent, thus giving time for the small amount of moisture which it still contains to become thoroughly separated. Each tank should be tested with litmus paper every day, and if any signs of acidity are developed, the nitroglycerol must at once be destroyed or rewashed. The pipe line from the wash-house should be so arranged that it may be broken when not in actual use, thus preventing the communication of an explosion from one building to the other. It should also be carefully guarded against freezing in winter, and becoming overheated in summer.

The spent acid, which we lost track of as it left the first separators, flows in the usual form of trough to the second separators, where the process is continued for at least three, preferably five, days. These separators are best oblong lead boxes, having a capacity sufficient to accommodate the spent acid from three runs, and are furnished with cooling coils and air agitators, the last for use only in emergencies. The top of these boxes should have the shape of three quadrangular pyramids, set side by side. These pyramids terminate in glass cylinders about twelve inches in height and four in diameter, which have a glass plug ground into them about six inches from the bottom. The tops of these cylinders are covered with ground glass plates in order that the air may be excluded from the surface of the liquid as much as possible. The top plates having been removed, the spent acid is allowed to flow into the box until it is filled nearly to the top of the glass cylinders. The nitroglycerol finds its way to the surface of the liquid, and when it has accumulated to the depth of an inch or so, the lower level is brought opposite the plug in the side of the cylinder by drawing out a little of the spent acids, the plug is removed and the nitroglycerol allowed to flow out and into a lead saucer just below, from which it passes into a dish set to catch it under the spout of the saucer. It must be at once emptied into a pail and carried to the wash-house to be washed, or else drowned in a small tank provided in the separating house. The latter plan is preferable, as the danger of an explosion from the shock of dropping a pail is much less after the nitroglycerol has been thoroughly washed.

How to dispose of the spent acids from the nitroglycerol manufacture, which contain from 70 to 74% of sulphuric acid and from 7 to 12% of nitric acid, is a question which probably has caused managers of dynamite factories more thought than almost any other problem connected with the business. It can hardly be said to be solved satisfactorily yet, but in most cases the weight of opinion is in favour of regaining the acid. For this purpose it is run at once from the second separators into a montejus and blown into a tank situated near the top of a Glover tower, from which it can be run directly into the tower without further precautions. The nitric acid is condensed in any of the usual ways, while the sulphuric acid runs into a tank at the foot of the tower. The sulphuric acid comes out at 55° B., or over, in a well-managed tower, and the nitric acid can be kept above 36° all the time, usually near 38° B. Care must be taken to arrange the pipe leading from the montejus at the separating house to the tank at the Glover tower, so that it will drain itself thoroughly, as otherwise a sediment, composed mostly of lead sulphate, will settle out, together with any small amount of nitroglycerol the acids may still contain, and finally cause an explosion.

GENERAL RULES.

A few general rules to be observed in the manufacture of nitroglycerol may be mentioned here:—

Nitroglycerol should never be carried in pails when it is possible to avoid it.

All receptacles which contain the nitroglycerol and acids at the same time should be covered, so that neither water nor other foreign substance may accidentally come in contact with them. The writer has seen heating sufficient to necessitate the drowning of the contents of one of the second separators, caused by a small piece of wood falling into the mixture.

All receptacles for nitroglycerol, or nitroglycerol and acids together, should be set on a slight incline, so that they may be drained thoroughly on emptying them.

No more nitroglycerol should be made in one plant in a day than can be handled by two men working in a combined nitrating and separating house as described above. If more is to be handled, even occasionally, it will pay to have another plant entirely separate. The second plant is very valuable in case of emergencies, either due to explosions or the necessity for repairs to the apparatus.

The quality of the mixed acids and glycerol used must be given careful attention, and both should be bought under specifications embodying analytical methods. The method given by Lunge for the analysis of the acids is best for this purpose.

The strict enforcement of such specifications has led to the saving of at least £1,000 in a single year in the case of a factory turning out 9,000 or 10,000 pounds of dynamite per day.

MIXING WITH THE ABSORBENT.

The mixing of the nitroglycerol with the absorbent may be conducted in a building on the same level as the storehouse for the explosive. The best form of mixing machine now in use, is practically the well-known wheel-mill of the powder manufacturer. It consists of a circular wooden trough capable of containing a mixing of 500 pounds of dynamite at a time. In this trough, two large wooden wheels run, each followed by a brass plough which has a strip of rubber fastened at the lower edge, thus cleaning the trough without requiring an actual contact. Such an apparatus requires less time for mixing than the old method of using rakes, and is more thorough. The only danger is from nails, or other foreign substances getting into the trough, and to avoid this the absorbent should always be sifted. This is done best before the different ingredients are put together. The nitroglycerol should be brought from the storehouse in a small lead-lined tank, placed on wheels, and arranged as a push-cart. This is wheeled upon scales set in the floor of the storehouse, counterbalanced, and the required amount of nitroglycerol for one mix run into it through an opening in the top. It is then wheeled along a platform to the mix-house. This platform should have guides to prevent the cart from running off. At the mix-house, the nitroglycerol flows from the tank into the mixing trough through a piece of rubber hose attached to a small spigot in the bottom of the tank. The end of this hose is securely fastened to the top of the tank during the weighing and transportation of the nitroglycerol. This plan for transporting the explosive is superior to any of the old methods using pails, since they, even at the best, require some handling, with the consequent danger of dropping. The danger of spilling is also reduced to a minimum by this method.

The dynamite next passes to the pack-houses, where it is packed in paper cartridges of almost any desired size. Many packing machines are in use, but the old method of filling the cartridge by placing the open end over the tube of a tin funnel, and pressing the dynamite into place with a wooden packing stick, is preferable on the score of safety. From the pack-house the cartridges pass to the casing house, which process presents no particular points of difficulty, and from there to the magazines, or cars, as the case may be.

We now come to the part of the manufacture which is carried on outside the danger limits, and which includes the regaining of the spent acids already described. The arrangement of this part of the plant is solely a matter of convenience, and offers no particular difficulties due to the nature of the work, with the possible exception of the storehouse for the sodium nitrate, which should be at a reasonable distance from other buildings, and upon which no water should be thrown in case of fire. The sodium nitrate is best ground and dried in a steam-jacketed pan, in which heavy iron rollers run, as in the wheel-mill before mentioned. Steam-jacketed pans are also provided for the wood-pulp, kieselsguhr, etc.

The paper cartridges were formerly made by hand, and a large factory required a considerable number of girls for this purpose; but at least one machine is known to the writer, which does satisfactory work for a considerable range of diameters and lengths by a very simple adjustment.

Besides the examination of the mixed acids and glycerol above mentioned, the chemist should make frequent determinations of the nitroglycerol in the finished product, as a check on the mixing and weighing. The spent and regained acids may be analysed as a check on the working of the regaining plant, while valuable information is often brought out by an examination of the various absorbents.—*four.* *Am. Chem. Soc.*

THE VALUATION OF SODIUM NITRATE.—At the last meeting of the London section of the Society of Chemical Industry a note was read by Dr. Pauli on the valuation of commercial nitrate of soda. As is generally known, nitrate of soda is sold upon the "refraction" method of analysis, the impurities being estimated and the nitrate found by difference. The author suggested that any potassium present should be estimated as the platinum compound; nitric acid by Lunge's nitrometer method or Wright's silica method, and perchloric acid by Volhard's silver method, so that a correct analysis might be obtained. Dr. Messel suggested that it was of sufficient importance for the Council to appoint a committee to take evidence and devise, if necessary, a satisfactory method of analysis. Mr. Tyrer supported the idea, and although a member of the nitrate committee said they had sold this article for years under the present system without complaint, the resolution was agreed to unanimously.

EXHIBITS AT THE ROYAL SHOW.

[BY SPECIAL COMMISSIONER.]

THE second visit of the Royal Show to Manchester this week proved itself an undoubted success. In all sections the record of the last Windsor Show has been run very close by this, the fifty-fourth country meeting. It is not within the province of a technical journal to dwell unduly on the general history of the show, however interest may be, and as the exhibits this year are decidedly exceptional in number and interest we will therefore proceed at once to a review of them. It will be as well, however, to state at once that owing to the show not opening until Wednesday (a day later than usual) we found it impossible to do justice to all the exhibits in this issue, have, therefore, made a selection, and shall deal more fully with them, and also the remainder of the cognate items in our next issue. Following our usual classification, we will first deal with what is called the

FERTILISING SECTION.

There are about a dozen firms who are making this branch a speciality, and although we miss the names of one or two well-known firms whose places are filled by others, so that this section is as large as ever, we shall notice the exhibits in alphabetical order.

THE AGRICULTURAL AND HORTICULTURAL ASSOCIATION, of Deptford, London, have their attractive show of "One manure and selected seeds. Their fertilisers are compound scientific principles, with a view to ensuring the presence of elements essential to the particular crop, and at the same time to the exhaustion of the land. The practicability of their preparations is demonstrated by sets of clover, grain, and grasses grown in pots, and are very instructive.

THE ANGLO-CONTINENTAL GUANO CO., LTD., 15, Lead street, E.C., are content to rest upon the reputation of their well-known guanos derived from the Chinchas, Lobos Muera, and other islands. They also show the other customary nitrogenous fertilisers. A point that must not be overlooked is their collection of raw phosphates and other materials used by them in the preparation and manufacture of their fertilisers.

MESSRS. ASHWORTH AND SONS, LTD., of Frodsham Bridge, Warrington, in addition to a good collection of feeding stuffs in form of oil and cotton cakes, have a line of special turnip, maize, corn, and potato manures. Their nitrogenous bone manure and phosphatic manure are also noteworthy among the usual bone and other phosphoric preparations.

MESSRS. W. A. HOPE AND SONS, of Leicester and London, have cattle spices and condiments; also sulpho-arsenical sheep-dipping and a collection of disinfectants. Their "Jetol" iron and varnish and preservative is a useful preparation capable of many applications.

THE MANCHESTER CORPORATION CLEANSING DEPARTMENT have a neat stand, at which all the stages of treating the town's refuse to a fertilizer and other bye-products are illustrated by sample specimens. Their fertilizer has now got a good hold on the public, owing to its being always of guaranteed strength and delivered free up to 100 miles away from Manchester. This is the first time we understand, that the Corporation have shown at the Royal.

PERMANENT NITRATE COMMITTEE, as usual, have a stand which attracts a good deal of attention. There is nothing fresh to note, in the collection, unless it is to add that this advertisement of nitrate of soda must be a lucrative one if it brings such results to the same show can do service year after year, as it does.

PHENIX OIL MILL COMPANY, LIMITED, Liverpool.—This well known for its feeding stuffs, from among a large collection call attention to their palm nut meal, cocoa-nut cake, and Rice meal. They also show a number of bone preparations and fertilizers, a grass manure being a speciality. There is a good collection of raw materials imported by the Company for making these and meals, and also a collection of linseed and other oils produced in the process of the manufacture.

MESSRS. PROCTOR AND RYLANDS, of Birmingham and Cheshire, make a feature of potato and hop manures, and also preparations for all kinds of grass land. Among a good show of stock fertilizers for general purposes we noted a compound bone phosphate, a nitrophosphate or blood manure, and pure raw bones.

MESSRS. J. SHEPHERD AND CO., of 51, Oldhall-street, Liverpool, have a representative collection of manures, simple and compound, which bone preparations predominate. Raw phosphates are shown.

MESSRS. WEBB AND SONS, of Stourbridge, who are, of course, well known in the matter of seeds, have a section of their extensive devoted to their manures for special crops.

MACHINERY.

ibits in this section are very numerous, and we can now only a few of the leading features. Naturally, therefore, we shall ke first those firms that have entered new implements for the silver medals.

HARDY PATENT PICK COMPANY, LIMITED, of Sheffield, ed a new packer for seeds, and similar materials of which we more to say later on. They make a good show with their ntegrators of various sizes. Their Multiple Grinder, and the or Sifter were also represented. At the next stand but one

CHRISTY AND NORRIS, of Chelmsford, have their collection raters on view. This firm has entered a new implement in of a combined disintegrator and motor. The motive power y, and the apparatus is shown at work grinding a variety of The new combination will receive further attention at our subsequent issue.

BROWNING PATENT PUMP CO. is another of the firms the list of new implements, with their pump for deep lifts s and tanks, which is specially designed for irrigation, etc., nd estates. Pumps for sewage and thick liquids are another ule a pump for spraying insecticides must also be included.

H. POOLEY AND SONS, LTD., of Liverpool, make a good weighing machines, and have entered for competition two bridges, one for road vehicles and motors cars, having a f to tons, and another for railway waggons, with a capacity Both are fitted with interchangeable parts, and the latter with a new patent "toggle" relieving apparatus.

BRADBURY, Charles-street, Manchester, has a machine the medal competition, which is not of direct interest to our t he is also showing a grinding mill for manure, sand, lime, will be found useful to builders and for general agricultural

CENTRAL CYCLONE CO., LTD., London, are much in with a well-arranged collection of their now widely known ated pulverizers and disintegrators on the "Cyclone" The classes of the former that are shown are respectively grinding at one operation chemicals, phosphates, and ores, s, to impalpable powders. Five types of disintegrators are ese classes being capable of grinding or triturating a wide materials, such as chemicals, cereals, barks, manures, dried en bones, etc. The largest one shown is a splendid mill, dealing with five to ten tons of material per hour.

FOLLOWS AND BATE, of Gorton, Manchester, have a well-how, on much the same lines as former years. Grindstones re with them. Among a lot of agricultural and horticultural s, they are also showing their horizontal disintegrator and an er for grinding and preparing manures. Their "Handy" d horizontal mixers are also shown. They have a good of paint mills, nine different sizes and makes being shown, to their Granite Triple Roller Mill.

HARRISON CARTER, of Dunstable, and 82, Mark Lane, nes himself this year to desintegrators, of which he shows s and sizes, which are adapted to the grinding of an exten- of materials. Some of the disintegrators are mounted on as to be portable.

PULSOMETER ENGINEERING CO., LIMITED, show a collec- r special pumps and filters. Various sizes of the Pulsometer , and also the "Criton," the "Deane," and their Duplex. of these, owing to its simplicity, is specially suitable for hick fluids such as liquid manure. In addition to the fore- have on view a new refrigerating plant for dairies, which is designed to meet the demand for a reliable but simple d ice-making plant for dairies and butter factories. It is y important to note that there is no loss of the refrigerant akage, and so no smell of any kind.

CROSSLEY BROS., of Manchester, make a good display with n of their gas and oil engines, some of which are portable and special type for driving dynamos for electric lighting pur- se engines being designed to ensure steady running. Their n, 7 N.H.P. portable oil engine will be found very useful er is wanted intermittently in different localities.

BIRCH, of Salford, is showing his self-cleansing filter for d waste effluents, and also his automatic sludge compressor, ks in conjunction with the filter. He also has a section of g tank he employs, in which is a special sludge trap, by the ch the tank never wants emptying.

ROYLE, of Manchester, is always associated with reducing ater heaters, steam traps, and condensers of the Row , and with these he makes an interesting exhibit.

Messrs. LANCASTER AND TONGE, of Pendleton.—This firm have all their leading specialities well represented. Their oblique engine, fitted with their own patent metallic packing and piston rings, does much to add to the attractiveness of the exhibit. It is almost needless to say that steam traps are an important feature. They also have a boiler with "Lancaster" mountings and fittings, specially suitable for driving the engine referred to above.

Messrs. W. H. WILLCOX AND CO., 34, Southwark-street, S.E., are exhibiting a good general display of engineers' tools and specialities. Among the principal exhibits are their new semi-rotary pumps, which are being introduced both for lift and force. They will work by hand, steam, water, wind, motor, or any other power, and they are fitted up for all general purposes. They are also mounted on portable wrought iron stands, and on wooden barrows. They are very simple to fix, being made with lugs to bolt on to plank or wall. A special novelty is their improved swing body garden engine, fitted with semi-rotary pumps. Penberthy injectors, for which the firm are so well known, are there in full force. They are absolutely automatic and re-starting, and when compared with any other injector in the market they will be found cheap and most efficient boiler-feeders. They are made in various sizes for from $\frac{3}{8}$ in. to 2 in. pipe connections. Then there is their special patent wire bound hose which is now being generally adopted by traction engine owners as a water carrier. It is oil-dressed, bound with wire externally and internally, is quite free from rubber, and is giving every satisfaction for manure pumps, tar pumps, oil pumps, etc. It will not kink, and is the only hose that is not affected by grease. The leading features are supported by a host of accessories such as leather belting, lubricating oils, and oil filters, engine packings, and other engineering sundries

MESSRS. BROTHERTON AND CO. AND THEIR EMPLOYEES.

MR. EDWARD ALLEN BROTHERTON, of the firm of Brother- ton and Company, tar and ammonia distillers, of Leeds, Wake- field, Birmingham, Salford, etc., entertained his workpeople, neigh- bours, and friends at his residence, Arthington Hall, on Saturday last, in celebration of the Diamond Jubilee. The guests also included the whole of the parishioners of Arthington and the adjoining villages, and ladies and gentlemen from Leeds, Otley, and Ilkley, numbering in all about 2,500. Until evening the weather was fine, and with the beau- tiful park looking its best and the grass quite dry, despite the recent rain, the gathering was pleasant for all concerned. Dinner was served at mid-day, and at the conclusion of the meal the company reassembled in another marquee, where Mr. Brotherton welcomed his guests. The Vicar of Arthington, the Rev. Thomas Brackenbury, presided. On the motion of the rev. chairman, seconded by Mr. Howitt, of Knutsford, a telegram was despatched to Her Majesty, congratulating her on the completion of the sixtieth year of her glorious reign. The company then sang the National Anthem, the bands of the Leeds Rifles and of the 1st West York Royal Artillery playing the accompaniment. Mr. Wyld, manager of the Birmingham Works, afterwards presented to Mr. Brotherton a beautifully illuminated address in album form, in which his workpeople testified to their sincere esteem for that gentle- man, and their sense of the pleasing relations that existed between his workpeople and himself. Mr. Geo. Brumfitt added a few words, and Mr. Brotherton, who had an enthusiastic reception, responded. Mr. Brotherton afterwards, in the presence of the company, planted a memorial oak tree in the park. The afternoon festivities commenced with a cricket match, and while the game was in progress the children were presented with commemoration medals and Jubilee balloons. Afterwards there were sports, &c., for the youngsters, and glee singing by the Arthington, Bramhope, and Pool choirs, while the bands per- formed selections at different parts of the grounds. The evening's programme included dancing on the green and a fireworks display by Messrs. Womersley and Company. On leaving the grounds each child received an orange and bun. During the afternoon tea and light refresh- ments were served in a large tent, and at five o'clock a more substantial meal was provided in the dinner-tent.

JUBILEE HONOURS.—In the list of honours conferred in commemo- ration of Her Majesty's Diamond Jubilee, we notice that Colonel D. Gamble has been made a baronet. Col. Gamble is the son of Mr. Josias Christopher Gamble, who, after being a Presbyterian minister in Ireland, became a pioneer of the Lancashire chemical industry, found- ing a business which was some years ago absorbed in the Alkali Union, of which Col. Gamble is a director. Prof. Crookes F.R.S., has been knighted, and Mr. Edward Frankland, F.R.S., Prof. J. Norman Lockyer, and Mr. H. C. Maxwell Lyte have been invested with the Order of the Bath.

Trade Notes.

NO DUTY ON NITRAGIN.—Messrs. Victor Koehl & Co. imported nitragin into the United States on which duty was assessed at 25% as a chemical compound. The importers claimed free entry as a substance expressly used for manures, or that if dutiable it was a non-enumerated manufactured article provided for at 20 per cent. The Board of United States General Appraisers, in an opinion by Appraiser Lunt, have sustained the protest of the importers on the claim that it is a substance expressly used for manure, and is therefore exempt from duty.

THE USE OF OXYGEN AS A RESUSCITANT.—It is interesting to note that in the last report of Mr. A. C. Fryer, Ph.D., one of Her Majesty's Alkali Inspectors, the following quotation is made from a letter written by Mr. Winders, of the Netham Chemical Co., touching his claim to having been the first to use oxygen for this purpose. He says:—"We had our first cylinder of oxygen on October 25th, 1893, and immediately we made a trial of it. I had previously consulted Dr. Markham Skerritt about it, who advised me to keep it always ready. I had the idea of it for some time before I actually introduced it at Netham Chemical Works. I gathered it from an account I read in the papers, of a soldier in barracks being rendered insensible by an escape of burning gas in his bedroom. When found he was far gone, and one of the officers, remembering that they had been using oxygen for a magic lantern exhibition, fetched the cylinder of compressed oxygen, and applying the nozzle to the man's lips, set it on at high pressure, and displaced the foul gas. By the time the doctor arrived the man was sitting in a chair almost all right. After using it at the Netham Chemical Works, I found it most useful, and I at once communicated the fact to the other works belonging to the United Alkali Company."

Market Reports.

TAR AND AMMONIA PRODUCTS.

Things are quiet generally with tar products, and the market in some sections has been dull. Benzols are practically the same as last quoted, though inclined to be dearer, with 90's ranging from 1s. 10d. to 1s. 11½d., and 50/90's 2s. Carbolic acids show more activity, 60% crude having fallen. As a matter of fact the reported prices of this article are very divergent, and the nearest value that can be given is 2s. Crystals (40%) remain at 7¾d., while liquid is now quoted 1s. Crude naphtha is still quoted at 11d., while solvent is rather easier at 1s. 6¼d. to 1s. 7d. Anthracene and creosote are unaltered. Pitch flat, at 18s. to 22s., f.o.b. East Coast.

Sulphate of ammonia is steady. The market has only just thrown off its holiday lassitude, but the better movement in London has acted as a corrective. Forward business is also beginning to look less impossible than it did, though the prices talked of are practically the same as for prompt. Closing values are:—Beckton £7. 11s. 3d., London outside makes £7. 10s., Liverpool £7. 12s. 6d., Hull £7. 8s. 9d., and Leith £7. 10s., all prompt.

MISCELLANEOUS CHEMICAL MARKET.

The celebrations of the past week have interfered with business, and as a consequence trade generally has been somewhat quiet. Bleaching powder continues in steady demand, and prices are firm at £6. 7s. 6d., softwood, rails, and £6. 12s. 6d., hardwood, f.o.b. Caustic soda moves but slowly—10-day's value, £7. for 70% and £6. for 60%, rails. Salt-cake has a fair amount of inquiry, but price does not improve. Nitrate of soda, in moderate demand at £7. 10s. to £7. 15s. There is no change to record as regards chlorates of soda and potash. Acetates remain dull. White sugar of lead (foreign) £22. 7s. 6d., c.i.f. Acetate of soda £13; lime (brown) £5. 5s.; grey £8. 10s. Sulphate of copper in steady request at £16. 5s. to £16. 10s. per ton. Sulphur of all grades rather easier, but no notable change at present. White powdered arsenic is still quoted at £22. 5s., but there is no large amount of business passing. Oxalic acid in slow demand at convention rates. Borax inactive at £16. Crude carbolic acid (60's) has but little animation, and quotations vary, some makers quoting 2s. and others up to 2s. 4d. per gallon. The demand for yellow prussiate of potash is moderately brisk, and price is steady at 5¾d. per lb. Fine chemicals have but little activity, owing to the depression in the textile trades.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron steady. Scotch warrants closed at 46s.; Middlesbrough, 41s. 4d. cash; and hematite, 49s. Copper firm: Chili bars, G.O.B.'s and G.M.B.'s, closed at £49. 11s. 3s. to £49. 16s. 3d. cash, and £49. 17s. 6d. to £50. 2s. 6d. three months. Tin firm: Straits closed at £62. 15s. to £63. 5s. cash, and £63. 5s. to £63. 15s. three months; Australian, £64. to £64. 5s.; English

ingots, £66. to £66. 10s. Lead steady: Spanish, £12; B. £12. 2s. 6d. Silesian spelter, ordinary, £17. 5s. to £17. 10s. Nickel, 1s. 2½d. Antimony, £30. to £30. 10s. Quicksilver, hands, £7. 5s.; second hands, £7. 4s. Copper shares steady, 2½ to 2½; Copiapo, 2½ to 2½; Libiola, 2½ to 2½; Man Barry, 2½ to 3½; Rio Tinto, 22½ to 22½; Tharsis, 5½ to 6.

GLASGOW, WEDNESDAY.—Market firm, and a small lot Scotch done at 46s., 46s. 1d., and 46s. 0½d. cash; also at 46s. 3d., and 46s. 2½d. one month; buyers, 46s. cash; 46s. 0½d. Cumberland done at 41s. 5½d. one month; 41s. 4d. cash; sellers, 41s. 5d. Cumberland hematite 48s. 11½d. to 49s. cash, and 48s. 2d. one month; buyers 49s. sellers 49s. 0½d. Middlesbrough hematite, buyers, 51s. 3d. sellers, 51s. 4½d.

REPORT ON MANURE MATERIAL.

Business throughout the week has been of a holiday character in the main prices are without change. Florida phosphate 75/80%, is held for 5¼d. per unit, c.i.f. to good United Kingdom shipment up to spring, 1898. The quotations for Algerian and Carolina rocks are unchanged. For ordinary Bombay bon £3. 10s., ex store, would be accepted, and this price would be accepted for shipment. Nitrate of soda is quiet, at 7s. 4½d. for ordinary, and 7s. 6d. for fine quality. There is nothing to report in miscellaneous material.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.—OILS.—Palm oil keeps very firm in price, but with the rest of the market is dull, there being very little business doing description. Olive also keeps steady at full rates, and this interfering with a fairly good consumptive trade. Linseed, again, at 15s. 3d. to 16s. 6d. per cwt. in export casks for L. makes. There is practically no change in cottonseed, Liverpool remaining at 15s. to 15s. 9d. per cwt. Castor oil is well maintained price, but business is rather quiet, with good seconds Calcutta. 3½d., first pressure French 3d., and Madras 3½d. per lb. Turpentine are firm, at 21s. 6d., and in good demand. Quiet to dull: American 5¼d. to 7d., and Russian refined per gallon.

CAKES.—The market has been of a holiday character, and no alteration in prices of sufficient moment to notice specially.

COLOURS.—Prices are steady, and practically without change. Ochres: Oxfordshire, common, £10., medium, £12., best, £14.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Wels 90s., seconds, 50s., and common, 18s.; Irish, Devonshire, 45s.; French, J.C., 65s. Umber: 40s. to 45s. White lead: Red lead unchanged. Venetian red, £6. to £10. Cobalt oxide, 9s. 9d.; black, 9s.; blue, 6s. Oxide of iron: C 47.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £24.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.—OILS.—The city is *en fête* to-day, celebrating the Jubilee elevation to the position of a Jubilee city, consequently no business moving. The imports to date, compared during the same time ago, have been—Linseed, 298,141 qrs, against 362,589 qrs.; rapeseed, 51,878 qrs., against 68,638 qrs.; cottonseed, 105,216 tons, against 88,409 tons; oilcake, 6,366 tons, against 7,171 tons; olive oil, 105,216 tons, against 3,580 tons. Linseed oil was firmer yesterday, but later part of last week, the closing quotations being firm—spot 13 asked; forward, June-August, 13s. 9d.; last four months, 14s. Boiled and refined, £1. to £1. 10s. per ton extra. Refined oil continues a falling market, being quoted 12s. 10½d. nake at which there are sellers; forward, June-August, 13s.; April, 13s. 4½d. Filtered refined, £1. per ton extra. Crude oil spot, 11s. 9d.; casks £1., and ordinary barrels £1. 10s. per ton. Castor oil—the quality extracted here finds a good market for many purposes, and is quoted from 3d. per lb. Cod oils, £16. to £17. Spirits of turpentine and olive oils unchanged. Italian soaps (neutral), £16. to £18. per ton. Soft soap, £12. Oleine to £18. per ton. Chlorestine (extract of wool fat), £28. per ton.

CAKES.—A good number of the crushing mills are closed others only running part time. Linseed cakes are quiet, 95 £6. 5s. to £6. 7s. 6d. per ton; oilcakes, £5. 5s. to £5. 7s. Americans, £5. 5s.; Russians, £6. 2s. 6d. Cotton cakes remain quiet: best makes, £3. 12s. 6d. to £3. 13s. 9d.; seconds, £3 to £3. 10s. Rape cakes: Black Sea, £3. 11s. 3d. per ton.

PAINTS.—Makers continue well employed, with no alien prices.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

position of sulphate of ammonia has certainly improved a little time being, though the more favourable tendency may perhaps be but of brief duration. Forward dealing has long been effectually by the broad diversity of views as to figures between and sellers. These views show signs of reconciliation, and the forward business cannot be said to have been actually resumed, and is now very slight. Buyers are willing to pay £7. 15s.; want £7. 17s. 6d. The prompt price f.o.b. Leith remains at the figure (£7. 8s. 9d. to £7. 10s.), but firmer. General prices show little or no change which is not attributable to the interruptions of the Jubilee celebrations. Of late borax manufacture has been out of harmony with each other, and the price of that acid has given way. Mineral oils and paraffins unaltered. Prices current are:—Soda crystals, £2. 12s. 6d., nett, Tyne, 48/62°, £4. 2s. 6d. to £4. 15s. nett, Tyne; white alkali, £5. to £5. 10s. nett, Tyne; alum in lump, £5. to £5. 5s. asgow; caustic soda, white, 74° £8. 2s. 6d., 70/72° £7. 2s. 6d., £6. 2s. 6d., and cream 60/62° £6., all nett, Liverpool; bleacher, 35/37°, £6. 10s. nett, Tyne; saltcake, 19s. to 20s.; borax, refined, £16. and boracic acid, £26, nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 7s. 6d., and 1-cwt. casks £6. 15s. nett, oil; bichromate of potash, 4½d. nett, for Scotch and English (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. v); chlorate of potash, 4d. less 5%, any port; nitrate of soda, to 7s. 9d.; sulphate of ammonia, £7. 8s. 9d. to £7. 10s., f.o.b. Leith; sal ammoniac, first and second white, £33. and £31. any port; sulphate of copper, £16. 5s. less 5%, Liverpool; scale, hard, 1½d. to 1½d., and soft, 1½d. per lb.; paraffin 20° semi-refined, 1½d. to 2d. per lb.; paraffin spirit 1½d., 6d. to 6½d. per gallon; paraffin oil (burning) No. 1, 6½d., 2½d., at Glasgow and other big centres, for Scotch buyers (sales ½d. to ¾d. lower); ditto (lubricating) 86° £5. to 88° £5. 15s. to £6. 5s., and 890/895° £6. 10s. to £7. imports of sugar at Greenock were 19,776 bags and 335 casks refined.

TYNE CHEMICAL REPORT.

TUESDAY.

icals show no alteration in price, and business on this side is only to be quiet until the local holidays are over. There is good demand for 76/77% caustic, and price quoted is £8. 15s.; for 70%, £7. 5s. and £7. 10s. per ton. Soda crystals 6d. per ton, gross weight, locally. Sulphur, £4. 15s. per ton, fine powder, soft, £6. 10s. per ton, nett; hard, £6. 15s. per ton; caustic soda, 76/77%, £9. per ton, nett; do., 70%, £8. 10s. nett; recovered sulphur, 2 cwt. bags, £4. 15s. per ton, soda ash, 48%, £4. 10s. per ton, nett; do., 50%, £4. per ton, nett; do., 52%, £4. 15s. per ton, nett; alkali, 36%, 6d. per ton, nett; white alkali, 48%, £5. per ton, nett, £5. 5s. per ton, nett; do., 52%, £5. 10s. per ton, nett. White of soda, 5-7 cwt. casks, £6. 5s. per ton, nett; do., 1 cwt. per ton, nett; silicate of soda, 75° Tw., £2. 12s. 6d. per ton, 100° Tw., £3. per ton, nett; do., 140° Tw., £3. 7s. 6d. per ton, nett; soda crystals, casks, £2. 12s. 6d. per ton,

gross weight; do., 2 cwt. bags, £2. 12s. 6d. per ton, nett weight; chlorate of potash, 5d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £3. 17s. 6d. per ton, nett; blanc fixe, £7. 5s. per ton, nett; chloride of barium, refined crystals, £6. 15s. per ton, nett; do., 90/95% crude calcined, £6. per ton, nett; sulphide of barium, crystals, £4. 15s. per ton, nett; carbonate of alumina, £30. per ton, nett; aluminate of soda, £30. per ton, nett.

SALT.—South Durham salt is steady at 9s. per ton, f.o.b. Tees.

COALS.—Trade is brisk, and there is a good demand for steam and bunker coals. Coke is very scarce and firm and price ranges from 17s. to 20s. per ton. Best Northumbrian steam, 8s. 6d. to 8s. 9d. per ton; second quality, 7s. 6d. to 7s. 9d. per ton; small steam, 4s. 3d. to 4s. 6d. per ton; household coals, 10s. to 10s. 6d. per ton; gas coals, 7s. 3d. to 7s. 9d. per ton; coke, scarce, 17s. 6d. to 20s. per ton.

New Companies.

John Fennett & Co., Ltd.—CAPITAL £20,000, in shares of £5. each, of which 1,200 are preference. This company has been formed to carry on the business of cake factors, meal-men, millers, &c., at Cam Mills, Dursley, and Huntingford Mills, Wootton-under-Edge. The subscribers to the memorandum of association are:—R. A. Lister, The Towers, Dursley, Glos., engineer; J. Bennett, Cam Flour Mills, Dursley, Glos., miller; S. P. Bendall, Huntingford Mills, Glos., miller; F. Davis, Dursley, Glos., manager; W. J. Lister, Rivers, Dursley, Glos., manufacturer; T. Viney, Cam, Dursley, Glos., coal merchant; W. Legge, Berkeley, Glos., auctioneer.

Woodward Electrical Storage Battery Company, Limited.—CAPITAL £60,000, in £1. shares. This company has been formed to carry on the business of storage battery manufacturers and electricians. The subscribers to the memorandum of association are:—H. Woodward, 26, Elgin-avenue, W., electrician; H. Beckett, Trafalgar Buildings, Charing Cross, gentleman; P. de Metz, Finsbury House, E.C., accountant; H. Lach-Szyrna, Barkingside, Ilford, manager; A. Sheppey, 13 and 14, King-street, Cheapside, electrician; P. Mason, 64, Gresham-street, E.C., chartered accountant; T. C. Berrington, 1, Victoria-street, S.W., insurance broker.

Irish Match Company, Limited.—CAPITAL £10,000, in £1. shares. This company has been formed to commence and carry on the business of manufacturers of and dealers in matches, phosphorus, glue, soap, candles, &c. The subscribers to the memorandum of association are:—D. C. Davies, Belmont, Mersey-road, Sale, corresponding secretary; M. E. Lynas, 7, Lombard-street, Belfast, accountant; J. Bowden, 60, Upper Queen-street, Belfast, manager; J. Grithrie, 39, Belvue-street, Belfast, clerk; T. Robinson, 4, Byron-street, Belfast, clerk; J. Courtney, Temple Patrick, clerk; J. Lawther, Burnside, Dunadry, clerk.

Gazette Notices.

PARTNERSHIP DISSOLVED.

J. JEKYL and G. GLASIER, Lincoln, manufacturers of chemicals, etc., under the style of Jekyll, Glasier, and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

EAST, J., Reading, oil and colour man.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

ending June 12th.

of Lime—

5,557 bgs. C. Tennant, Sons & Co.
276 J. R. Francis & Co.

acid—

50 pks. R. W. Greeff & Co.
77 A. & M. Zimmermann

50 c. J. Barber & Co.
30 A. & M. Zimmermann
20 R. W. Greeff & Co.

246 pks. Ohlen-
schlager Brs.
24 cks. R. W. Greeff & Co.

um Sulphate—

76 cks. H. Wallace & Co.

Arsenic—

Melbourne, 125 kgs. Welch, Perrin & Co.

Asbestos—

Italy, £235 Baynham & Co.

Barytes—

Belgium, 300 bgs. 39 brls. J. L. Lyon & Co.

" 120 174 cks. 33 pks. W. Harrison & Co.

Holland, 100 Philipps & Graves

Belgium, 100 30 Burrell & Co.

Holland, 67 G. Rahn & Co.

" 54 J. L. Lyon & Co.

Belgium, 13 Sawyer, Sons & Co.

Germany, 44 W. Harrison & Co.

Holland, 11 J. Owen

Bleaching Powder—

Holland, 30 cks. J. M. Steel & Co.

France, 75 J. A. Reid

Camphor—

Germany, 2 cks. T. H. Lee

" 100 Brown & Emslie

Caoutchouc—

France, 1 c. J. Coppo & Co.

Zanzibar, 22 L. & I. D. Jt. Co.

Germany, 14 T. H. Lee

" 3 Wallace Brs.

E. Indies, 18 L. & I. D. Jt. Co.

Rangoon, 668 "

P. E. Africa, 25 R. G. Hall & Co.

Zanzibar, 2 S. Figgis & Co.

" 20 Prop. Hay' Wf.

Ceylon, 202 Ralli Brs.

E. Indies, 15 Prop. Bull Wf.

Spain, 12 Brookes & Co.

Nata, 25 W. Ba hin

U. States, 80 Hale & Co.

Germany, 5 Butler's Wf. Ld.

Penang, 125 "

Carbonic Acid—

Holland, 200 tubes J. Barber & Co.

Castor Oil—

R. Indies, 166 c. Cayzer, Irvin & Co.

France, 30 cks. F Boehm

Caustic Potash—

Belgium, 8 drs. Elkan & Co.

Chemicals (otherwise undescribed)

France, £116 Hernu, Peron & Co'

Hong Kong, 10 J. H. Bower & Co.

Germany, 140 L. & I. D. Jt. Co.

" 414 T. H. Lee

Belgium, 150 John Cockerill Line

Holland, 7 H. Johnson & Sons

" 35 Philipps & Graves

" 90 T. H. Lee

" 65 H. Lorenz

Germany, 324 A. & M. Zimmermann

Belgium, 15 H. & G. Dufield

France, 20 B. & F. Wf. Co.

Germany, 55 H. Lambert

Holland, 28 Typke & King

Cobalt Ore—

Australia, 106 t. C. H. Gare

" 101 Hore & Scrivener

" 38 J. Allen & Co.

Copperas — Germany, 32 cks. Burgoyne & Co. Cream of Tartar — France, 50 cks. B. & F. Wf. Co. Spain, 6 20 kgs. Vokins & Co. France, 2 C. F. Gerhardt " 20 W. C. Bacon & Co. " 10 F. C. Devon & Co. Portugal, 5 B. & F. Wf. Co.	Manganese — Germany, 9 t. 10 c. Soundy & Sons Manganese Ore — Australia, 1 t. Macqueen Bros. " 25 P. W. Spence & Co. Manure — France, 50 t. Burnett Bros. & Sons Germany, 17 A. J. Luke & Co. Mercury — Belgium, 3 cs. T. H. Lee Metallic Oxide — Germany, 1 ck. Brit. Anti-Fouling Co. Co.	Belgium, 80 Leach & Co. " 80 F. Claydon & Co. " 80 Taylor Bros. " 220 bxs. C. Tennant, Sons, & Co. U. States, 100 bgs. R. G. Hall & Co. Holland, 1,232 pks. Little & Johnston Belgium, 10 cs. T. Ronaldson & Co. France, 50 W. E. Cole " 40 J. Barber & Co. " 80 pks. Carey & Sons	Antwerp, 30 bgs. Fletcher & Co. " 14 100 Bone Ash — Campana, 466 bgs. J. Nal & Sons Zarate, 296 Boracic Acid — Leghorn, 3 brls. 12 cks. Boracite — Panderma, 385 t. Borax — Mollendo, 1,299 sks. Caoutchouc — Havre, 35 cks. Cunard S. Co. Mollendo, 139 bils. H. Schre &
Dyestuffs — Annatto E. Indies, 14 bgs. Anderson, Weber, & Co. Anthracene Spain, 300 cks. Burt, Boulton, & Co. Cochineal Germany, 5 bgs. A. Everingham & Co. Cutch Rangoon, 100 bxs. Brown & Elmslie " 900 Leach & Co. Extracts Ceylon, 18 cs. Eastwood & Holt Belgium, 6 T. H. Lee " 25 cks. Leach & Co. Gambier Singapore, 261 bgs. Beresford & Co. Indigo E. Indies, 32 chits. Croysdale & Co. " 15 Parry & Co. " 92 R. Von Glehn & Sons " 7 L. & I. D. Jt. Co. " 90 Parry & Pasteur " 14 A. B. Curris & Co. " 15 H. J. Perbach & Co. Holland, 3 brls. R. Baetz & Co. E. Indies, 5 chits. Binny & Co. Germany, 1 pk. L. & I. D. Jt. Co.	Mica — Adelaide, £300 Major & Field E. Indies, 582 W. M. Smith & Sons Molasses — B. W. I., 99 cks. 100 c. H. Jackson " 51 5'0 E. D. & F. " 10 100 Wilkinson & Gaviller U. States, 186 1,120 W. Balchin " 100 561 R. G. Hall " 875 4,854 T. West Ochre — France, 68 cks. 8 cs. W. Harrison & Co. " 7 O'Hara & Hoar U. States, 70 brls. Page, Son, & Co. Permanganate — Holland, 16 cks. Carey & Sons Phosphate of Lime — France, 235 t. Anglo-Contl. Guano Works " 155 A. Hunter & Co. Phosphate Rock — Canada, 1,506 t. Anglo-Contl. Guano Works	Stearine — U. States, 186 cks. Wilsons & Furness Co. Holland, 25 bgs. G. Johnson & Son Belgium, 125 H. Hill & Sons Holland, 51 J. Owen Tar — Germany, 100 brls. W. Bread & Son Tartaric Acid — Italy, 2 cks. G. Boor & Co. France, 18 F. C. Devon & Co. Holland, 17 B. & F. Wf. Co. France, 10 cs. L. & I. D. Jt. Co. " 10 C. Atkins & Nisbet Holland, 37 kgs. F. C. Devon & Co. Belgium, 8 Kirkpatrick & Co. Holland, 10 kgs. Kirkpatrick & Co.	Castor Oil — Genoa, 5 cs. Calvert Chemicals (otherwise under) — Rotterdam, 20 cs. Cod Oil — Christiania, 5 brls. Nidel " 5 Clay, D " 10 R. J. &
Myrabolams E. Indies, 1,000 pks. Brown & Elmslie " 1,543 bgs. Hoare, Wilson, & Co. " 650 L. & I. D. Jt. Co. " 2,000 pks. P. & O. Co. " 2,000 Lucas & Spencer's Wf. Naphthalene Belgium, 97 brls. Elkan & Co. Saffron Spain, 1 cs. Nicks Wvs. L.L. Shumac Italy, 300 bgs. J. E. Scott " 100 Colthurst & Harding Tanners' Bark Belgium, 30 t. J. Harrison Durban, 145 A. & W. Nesbitt Adelaide, 44 Dyster, Nalder, & Co. Natal, 70 Flack, Chandler, & Co. " 51 Boucher, Mortimore, & Co. Durban, 10 Sydney, 59 Dyster, Nalder, & Co.	Pitch — N. Russia, 202 cks. Fellows, Morton, & Co. Plumbago — Germany, 191 cks. B. Gallaway Ceylon, 548 brls. J. Threddar, Son, " 24 cks. & Co. U. States, 27 cs. Lunham & Moore Germany, 170 E. & T. Pink Italy, 200 bgs. J. Threddar, Son, & Co. Potash — Germany, 80 c. Petri Bros. Potassium Bicarbonate — Holland, 10 kgs. A. & M. Zimmermann Potassium Carbonate — Germany, 220 c. Petri Bros. " 100 R. W. Greeff & Co. Potassium Sulphate — Germany, 508 bgs. Anglo-Contl. Guano Works " 51 Bessler, Waechter, & Co.	Ultramarine — Holland, 8 cks. Sawyer, Sons, & Co. Holland, 5 cks. J. Barber & Co. " 5 cks. Philipps & Graves Varnish — U. States, 6 pks. Dawson Bros. " 5 Avenue Speciality Co. Holland, 2 W. Balchin Germany, 17 H. Lambert U. States, 19 Taylor Bros. White Lead — Germany, 22 cks. W. Harrison & Co. " 44 J. Matton Holland, 10 W. A. Rose & Co. " 20 A. & M. Zimmermann Belgium, 19 brls. J. L. Lyon & Co. Holland, 29 cks. W. Balchin, Ltd. Germany, 18 Randall Bros. " 20 Burrell & Co. Germany, 1 pks. H. Lambert Wood Pulp — Norway, 196 bils. Becker & Co. Sweden, 3,418 Bergvik & Co., Ltd. " 1,544 W. G. Taylor & Co. Denmark, 255 M. D. Co. Germany, 32 Denmark, 942 bils. Henderson, Craig, & Co. U. States, 187 rolls Sweden, 160 bils. J. Owen Norway, 480 London Paper Mill Co. N. Russia, 4,200 L. Knoblauch U. States, 187 W. H. Carey & Sons Holland, 168 pks. G. Rahn & Co. Germany, 123 bils. T. H. Lee " 900 Horne & Co. " 300 Christophersen, Andrews, & Co.	Colours — Rotterdam, 4 cs. 2 cks. Copper Sulphate — Bordeaux, 5 cks. Cottonseed Oil — New York, 75 brls. Cream of Tartar — Barcelona, 5 brls. J. & Son " 20 Bordeaux, 43 cks. Cryolith — Hamburg, 1 cs. Dyestuffs — Argols Oporto, 26 cks. Bordeaux, 6 Cochineal Las Palmas, 10 bgs. Canary Is. Trading
Turneric E. Indies, 160 bgs. Williams, Torrey, & Co. " 232 L. & I. D. Jt. Co. Parina — Holland, 25 bgs. Dunlop Bros. & Co. Singapore, 337 Anderson, Weber, & Co. Holland, 100 cs. J. Knill & Co. Gamboge — Singapore, 33 cs. L. & I. D. Jt. Co. Glucose — U. States, 1,750 pks. 1,750 c. Pearce, Pelty, & Co. " 150 844 W. Grose & Co. " 307 1,920 Williams, Torrey, & Co. " 50 300 Union L. Co. " 270 780 L. Norman & Co. " 1,000 1,000 E. Thompson & Co. " 500 1,000 G. Clark & Son Germany, 14 115 J. Knill & Co. U. States, 5,351 45,104 R. G. Hall & Co.	Pumice Stone — Italy, 10 t. J. F. Power, Ltd. Rosin — France, 25 brls. Harrison & Co. " 13 C. W. Schmidt Germany, 14 cks. R. Baetz & Co. U. States, 4,536 brls. H. Hill & Sons Saltpetre — E. Indies, 1,074 bgs. Lucas & Spencer's Wf. Germany, 70 cks. S. E. Railway Co. E. Indies, 633 bgs. Blackwood, Bryson, & Co. " 435 Ross & Deering " 1,020 L. & I. D. Jt. Co. Soda — Holland, 100 c. R. W. Greeff & Co. Soda Ash — Belgium, 356 c. Butler's Wf. Ltd. Holland, 2,000 R. Waters Belgium, 3,800 Sodium Prussiate — Belgium, 51 cks. Blagden, Waugh, & Co.	Norway, 845 Tough & Henderson Holland, 169 Philipps & Graves Belgium, 1,750 E. J. & W. Goldsmith U. States, 582 Tough & Henderson " 11 cs. Lunham & Moore Germany, 1,000 t. J. Sharp Portugal, 500 Ekinam Pulp & Paper Co. N. Russia, 49 M. H. Voss Canada, 1,503 J. Spicer & Sons " Becker & Co. Zinc Oxide — Holland, 73 cks. J. Matton " 50 Pipers, Dowgate Dk. U. States, 220 brls. M. Ashby, Ltd. Holland, 25 Belgium, 10 Ross & Deering " 8 cks. Bulard, King, & Co. Holland, 500 pks. Soundy & Sons	Divi Divi Hamburg, 43 bgs. Extracts Halifax, N.S., 235 pks. Shumac Palermo, 110 bgs. Valonia Smyrna, 1,330 bgs. Gelatine — Hamburg, 1 cs. Glucose — Norfolk, Va., 200 brls. Hamburg, 99 cks. New York, 50 Dunkirk, 280 Boston, 100 New York, 100 T. M. D. &
Glue — Holland, 49 Carey & Sons France, 12 Bennett S. S. Co. Belgium, 204 J. Barber & Co. Germany, 0 Philipps & Graves Holland, 0 G. Rahn & Co. Russia, 310 M. H. Voss France, 24 B. & F. Wf. Co. Holland, 230 L. & N. W. Rly. U. States, 50 Armour & Co. Lamp Black — Sweden, 50 cks. Taylor Bros.	Starch — Belgium, 140 cs. T. H. Lee " 40 J. Marshall & Co. U. States, 4,000 bgs. Union L. Co. Germany, 300 cs. Seaward Bros. Belgium, 121 Becker & Wagner Austria, 50 bgs. M. D. Co. U. States, 200 Ohlenschlager Bros. " 400 pks. Beck & Pollitzer Holland, 1,200 cs. Vokins & Co. " 95 Philipps & Graves	Aluminous Cake — Rotterdam, 105 cks. Asbestos — Rotterdam, 36 bils. 10 crts. Barytes — Rotterdam, 42 cks.	Glue — Genoa, 24 cks. 100 St. Nazaire, 3 20 cs. Rotterdam, 103 bgs. Infusorial Earth — Hamburg, 237 bgs. Lactic Acid — Boston, 5 brls. 5 kgs. H. Lamp Black — Philadelphia, 35 brls. Gothenburg, 25 cks. Manganese Ore — Visagapatam, 1,000 t. Dar Monty In Manure — Philadelphia, 158 bgs. Montreal, 11 Mineral White — St. Nazaire, 200 sks. Molasses — Alexandria, 2 275. Philadelphia, 10 bils. Ochre — Rouen, 74 cks. Co-op. Society Aquilas, 164 pks. 1 cs. Paraffin Scale — New York, 1,177 bils. Thumy &

LIVERPOOL.

Week ending June 10th.

Acetic Acid — Gothenburg, 19 pks. Evans, Sons & Co.	Aluminous Cake — Rotterdam, 105 cks.	Asbestos — Rotterdam, 36 bils. 10 crts.	Barytes — Rotterdam, 42 cks.
---	--	---	--

ate—	5,000 bgs.	
am,	28 cks.	
	20 dms Barclay & Co.,	
	9 cks.	Ld.
Stone—	34 cs. 1 ck.	
	5,963 t.	Matheson & Co.
re,	230 brls.	
re—	2,185 bgs.	Ralli Brs.
	1,230	
	200	2 cks. 45 kgs.
rk,	27 cs.	F. K. King & Co.
	266	
	4	Barclay & Sons
ne—	200 bgs.	
Nitrate—	14,170 bgs.	
rk,	140 cs.	100 bgs.
	399	
	322	J. T. Fletcher & Co.
am,	10	
	220 bgs.	40 brls.
rk,	50 brls.	J. W. de Silva Co.
na,	469 cks.	
re,	129 tcs.	
	268 pps.	J. Nelson & Sons, Ld.
	400	Colby & Co.
	164 tcs.	
am,	4 cks.	
	22 bgs.	
ies—	4 cks.	Langstaff & Co.
de—	3 brls.	Johansen & Dahl
	530 brls.	
arine—	32 cks.	
i—	2 kgs.	
salt—	50 t.	
rg,	197 cks.	
Lead—	37 brls.	
k,	523 bdl.	189 cs. Christie & Co.
rk,	60	L. S. Dixon & Co., Ld.
en,	228 crts.	Lever Brs.
al,	307 rolls	Thin & Sinclair
dam,	108 brls.	
burg,	6 pks.	G. Schenkenwald & Co.
	893	G. F. Green & Co.
	60	F. Doherty
	100	
xide—	35 brls.	
rimming—	17 brls.	12 cks.
White—	100 cks.	

NANCHESTER

Week ending June 12th.

Acid—	40 balloons	
en—	3 cks.	
urg,		
ne—	37 cks.	21 brls.

Ammonia—	8 cs. 25 cyldrs.	
Aniline Oil—	1 balloon	
Asbestos—	32 crts.	
Barytes—	150 bgs.	
Chemicals (otherwise undescr.)—	172 cks.	
Chromium Chloride—	2 brls.	
Colours—	3 cks.	121 pks.
Rouen		
Rotterdam		
Boulogne	9	
Antwerp	12	30 cs.
Farina—	100 bgs.	
Hamburg	1,041	
Rotterdam		
Glue—	16 cks.	
Rouen		
Indigo—	204 cts.	
Rotterdam		
Lead Acetate—	23 cks.	
Hamburg		
Limestone—	1 crte. 1 cs.	
Antwerp		
Litharge—	38 cks.	
Rotterdam		
Ochre—	15 cks.	
Rouen		
Oxalic Acid—	15 cks.	
Hamburg		
Potassium Chloride—	8 cks.	
Hamburg		
Soda—	1 ck.	
Hamburg		
Starch—	82 cs.	
Rotterdam		
Antwerp	337	
Hamburg	480	
Sulphuric Acid—	10 dms.	
Rotterdam		
Tannic Acid—	1 ck. 1 cs.	
Hamburg		
Tar Salts—	4 cks.	
Hamburg		
Tar Waste—	4 cks.	
Rotterdam		
Tartar—	10 cks.	
Rotterdam		
Tartaric Acid—	3 cks.	
Rotterdam		
Ultramarine—	30 cs.	
Rotterdam		
Waste Salt—	qty.	
Hamburg		
Whiting—	350 bgs.	
Gotenburg		
Wood Pulp—	2,196 bls.	
Gotenburg		
Zinc Oxide—	10 cks.	
Hamburg		
Rotterdam	50 brls.	
Zinc White—	25 cks.	
Rotterdam		

HULL.

Week ending June 12th.

Acids—	1 cs.	Wilson, Sons, & Co., Ld.
Trieste		
Bari	101 cks.	"
Leghorn	12	"
Alumina	100 bgs.	W. & C. L. Ringrose
Rotterdam		
Aluminium—	100 bxs.	Wilson, Sons, & Co., Ld.
New York		
Ammonia—	73 pks.	Wilson, Sons, & Co., Ld.
New York		
Ammonium Chloride—	2 cks.	Wilson, Sons, & Co., Ld.
Hamburg		
Antimony—	8 cks.	Wilson, Sons, & Co., Ld.
Leghorn		
Asbestos—	3 cs.	Wilson, Sons, & Co., Ld.
Genoa		

Barytes—	18 cks.	Bailey & Leatham, Ld.
Antwerp		
Rotterdam	92	220 bgs.
Castor Oil—	7	Hutchinson & Son
Leghorn	40 cs.	Wilson, Sons, & Co., Ld.
"	5	"
Genoa	10	"
Marseilles	10	"
Chemicals (otherwise undescr.)—	4 cks.	Wilson, Sons, & Co., Ld.
Bremen		
Hamburg	4 pks.	
Antwerp	4 cks.	Wilson, Sons, & Co., Ld.
"	16 pks.	Wilson, Sons, & Co., Ld.
"	100 bgs.	
Dunkirk	10 cks.	Wilson, Sons, & Co., Ld.
60 dms.		
Cod Oil—	48 brls.	Wilson, Sons, & Co., Ld.
Aalesund		
Colours—	4 cks.	Storry, Smithson, & Co.
Bremen		
Danzig	6	Wilson, Sons, & Co., Ld.
Hamburg	1	
Antwerp	22	"
Stettin	31	"
Rotterdam	3	W. & C. L. Ringrose
3 brls.	35 pks.	
Cottonseed Oil—	295 brls.	Wilson, Sons, & Co., Ld.
New York		
Cream of Tartar—	4 cks.	W. & C. L. Ringrose
Rotterdam		
Dyestuffs—	26 brls.	W. & C. L. Ringrose
Alizarine	2 cks.	
Rotterdam		
Argols	27 bgs.	Rawson & Robinson
Bordeaux		
"	50	Wilson, Sons, & Co., Ld.
Indigo	82 cs.	Wilson, Sons, & Co., Ld.
Kurrachee		
Rotterdam	6	
Myrabolams	8,300 bgs.	
Bombay		
Shumac		
Trieste	26 bgs.	Wilson, Sons, & Co., Ld.
Palermo	250	"
1,875		
Farina—	122 bgs.	W. & C. L. Ringrose
Harlingen		
Stettin	50	Wilson, Sons, & Co., Ld.
Glucose—	150 brls.	
New York		
Glue—	20 bls.	Rawson & Robinson
Rouen	65 cs.	
Hamburg	25 bgs.	Wilson, Sons, & Co., Ld.
Antwerp	11 bls.	Bailey & Leatham, Ld.
Kaolin—	223 bgs.	Hutchinson & Son
Rotterdam		
Lime—	310 bgs.	Wilson, Sons, & Co., Ld.
New York		
Lithopone—	20 cks.	Hutchinson & Son
Rotterdam		
Amsterdam	20	"
Ochre—	4 brls.	Wilson, Sons, & Co., Ld.
Marseilles		
Paint—	4 cs.	Wilson, Sons, & Co., Ld.
New York		
Christiania	2	"
Phosphate—	10 bgs.	Wilson, Sons, & Co., Ld.
Antwerp	1,200	
Dunkirk		
Phosphorus—	100 cs.	Wilson, Sons, & Co., Ld.
New York		
Rotterdam	2	T. F. Bell & Co.
Pitch—	8 cs.	Wilson, Sons, & Co., Ld.
Hamburg		
Rotterdam	12 cks.	Hutchinson & Son

Pumice Stone—	2 cs.	Wilson, Sons, & Co., Ld.
Trieste		
Leghorn	142 pks.	10 brls.
Messina	50 cs.	"
Quicksilver—	200 btl.	Bailey & Leatham, Ld.
Libau		
Rosin—	10 cks.	Sissons Brs. & Co.
Bordeaux		
Saltpetre—	77 bgs.	Wilson, Sons, & Co., Ld.
Hamburg		
Soap—	10 cs.	Wilson, Sons, & Co., Ld.
Riga		
Bari	56	"
"	68	"
Molfetta	330 bxs.	"
Naples	14 cs.	"
Starch—	1,059 pks.	Veltmann & Co.
Bremen		
Rotterdam	40 cs.	W. & C. L. Ringrose
Ghent	280	Wilson, Sons, & Co., Ld.
Antwerp	40	Bailey & Leatham, Ld.
"	100	Wilson, Sons, & Co., Ld.
Ghent	36	Hutchinson & Son
Sulphur—	1,521 pks.	Wilson, Sons, & Co., Ld.
Catania		
Palermo	240 bgs.	"
Tallow—	15 brls.	Wilson, Sons, & Co., Ld.
Antwerp		
Dunkirk	79 cks.	"
Tartar—	6 cks.	Rawson & Robinson
Bordeaux		
Naples	10 cks.	Wilson, Sons, & Co., Ld.
Tartaric Acid—	12 cks.	W. & C. L. Ringrose
Rotterdam		
"	2	Hutchinson & Son
Treacle—	973 brls.	Wilson, Sons, & Co., Ld.
New York		
Ultramarine—	20 cks.	W. & C. L. Ringrose
Bremen		
Rotterdam	8	Sissons Brs. & Co.
Antwerp	2	Hutchinson & Son
Rotterdam	1	
Varnish—	4 cks.	
Hamburg		
Waste Salt—	qty.	Bailey & Leatham, Ld.
Hamburg		
White Lead—	11 cks.	Hutchinson & Son
Rotterdam		
"	18 W. & C. L. Ringrose	
Antwerp	49	Bailey & Leatham, Ld.
Amsterdam	24	Hutchinson & Son
Wood Pulp—	857 bls.	J. Good & Sons
Helsingfors		
Zinc Oxide—	78 brls.	
Trieste		
Zinc White—	25 cks.	W. & C. L. Ringrose
Rotterdam		

GLASGOW.

Week ending June 17th.

Barium Chloride—	4 cks.	J. Rankine & Son
Rotterdam		
Barium Sulphate—	12 cks.	120 bgs.
Antwerp		
Caustic Potash—	3 dms.	
Hamburg		
Caustic Soda—	5 dms.	
Hamburg		
Chemicals (otherwise undescr.)—	4 cks.	J. Rankine & Son
Rotterdam		
Chloroform—	1 ck.	
Hamburg		
Colours—	36 pks.	J. Rankine & Son
Rotterdam		

Cream of Tartar —		
Oporto, 2 cks.		
Dyestuffs —		
Alizarine		
Rotterdam, 20 cks.	J. Rankine	
8 brls.	& Son	
Aniline		
Rotterdam, 2 cks.	J. Rankine	
5 bxs. 12 brls.	& Son	
Logwood		
Jamaica, 500 t.	Mucklow & Co	
French Chalk —		
Trieste, 100 bgs.	P. M'Intosh	
80	& Son	
Glue —		
Rouen, 20 cks.	10 brls.	
Rotterdam, 80 bgs.	J. Rankine	
80	& Son	
Iron Oxide —		
Montreal, 176 pks.		
Litharge —		
Montreal, 13 cks.		
Manganese —		
New York, 26 cks.		
Ochre —		
Baltimore, 400 brls.		
Rouen, 1 ck.		
Phosphorus —		
Baltimore, 5 cs.		
Potash —		
Rotterdam, 46 cks.	J. Rankine	
80 dms.	& Son	
Hamburg, 10		
Pyrites —		
Huelva, 1 270 t.	Rio Tinto Co.	
3,795	Tharsis Co.	
Rosin —		
Baltimore, 501 brls.		
New York, 1,690		
Saltpetre —		
Hamburg, 2 cks.		
Soap —		
Philadelphia, 638 pks.		
Trieste, 75 cs.		
Sodium Acetate —		
Antwerp, 20 cks.		
Sodium Naphthol —		
Rotterdam, 1 ck.	J. Rankine	
	& Son	

Starch —		
Baltimore, 250 sks.		
Tallow —		
New York, 40 tcs.		
Tar —		
New York, 400 brls.		
Tartaric Acid —		
Rotterdam, 2 cks.	J. Rankine	
	& Son	
Treacle —		
Philadelphia, 300 brls.		
New York, 50		
Ultramarine —		
Rotterdam, 4 cks.	J. Rankine	
	& Son	
Yarnish —		
Antwerp, 2 cks.	Crawford & Co.	
New York, 113 brls.		
Waste Salt —		
Hamburg, 50 cks. 50 bgs. and qty.		
White Lead —		
Rotterdam, 39 cks.	J. Rankine	
	& Son	
Wood Pulp —		
Christiansand, 3,162 bls.		
Trieste, 204		
Montreal, 909 bds.		
Christiania, 1,138 bls.		
Rotterdam, 51	J. Rankine	
	& Son	
Zinc Oxide —		
Hamburg, 75 cks.	J. Rankine	
Rotterdam, 25	& Son	
Zinc White —		
Rotterdam, 25 cks.	J. Rankine	
	& Son	

TYNE.

Week ending June 12th.

Alum Earth —		
Hamburg, 27 cks.	Tyne S. S. Co.	
Antimony —		
Hamburg, 1 bg.	Tyne S. S. Co.	
Barium Chlorate —		
Rotterdam, 350 bgs.	Tyne S. S. Co.	
Barytes —		
Rotterdam, 46 cks.	Tyne S. S. Co.	
Antwerp, 250 bgs.		

Cod Oil —		
Bergen, 45 brls.		
Colours —		
Rotterdam, 8 cs.	Tyne S. S. Co.	
Antwerp, 2 brls.		
Glucose —		
Rotterdam, 10 bgs.	Tyne S. S. Co.	
New York, 302 brls.	Furness,	
	Withy, & Co.	
Glue —		
Antwerp, 2 cks.	Tyne S. S. Co.	
Paraffin Scale —		
New York, 45 brls.	Furness,	
	Withy, & Co.	
Rosin —		
Savannah, 2,821 brls.		
Salt —		
Harburg, 200 t.	Clephans &	
	Wiencke	
Soap —		
Rotterdam, 10 cs.	Tyne S. S. Co.	
Starch —		
Rotterdam, 126 cs.	Tyne S. S. Co.	
Antwerp, 20		
Stearine —		
Antwerp, 6 bgs.	Tyne S. S. Co.	
Tartaric Acid —		
Rotterdam, 20 kgs.	Tyne S. S. Co.	
Waste Salt —		
Hamburg, 300 t.		
Wood Pulp —		
Gothenburg, 120 bls.		
Christiania, 840		
Zinc Oxide —		
Antwerp, 45 brls.	Tyne S. S. Co.	

GOOLE.

Week ending June 9th.

Alizarine —		
Rotterdam, 52 brls.		
Alkali —		
Calais, 9 cks.		
Aniline Dyes —		
Amsterdam, 6 cks.		
Antimony —		
Boulogne, 2 cks.		

Barytes —		
Rotterdam, 10 cks.	110 bgs.	
Caoutchouc —		
Boulogne, 2 cks. 2 cs.		
Chemicals (otherwise undeciphered)		
Hamburg, 4 cks. 4 cs.		
Dyestuffs (otherwise undeciphered)		
Rotterdam, 493 cks.	111 cs.	
Boulogne, 8		
Indigo —		
Rotterdam, 10 chta.		
Nickel Sulphate —		
Hamburg, 1 ck.		
Potash —		
Dunkirk, 72 cks.	40 dms.	
Calais, 59		
Saltpetre —		
Rotterdam, 100 bgs.		
Tartar —		
Amsterdam, 2 cks.		
Waste Salt —		
Hamburg, 288 cks.	48 bgs.	
200 t.		

GRIMSBY.

Week ending June 12th.

Barytes —		
Rotterdam, 134 bgs.		
Caoutchouc —		
Rotterdam, 2 cs.		
Chemicals (otherwise undeciphered)		
Hamburg, 2 cks. 7 cs.		
Antwerp, 5		
Colours —		
Hamburg, 6 cks.		
Antwerp, 11	48 pks.	
Dyestuffs (otherwise undeciphered)		
Hamburg, 90 cs.		
Dieppe, 25 cks.		
Gypsum —		
Hamburg, 2 cs.		
Indigo —		
Rotterdam, 4 pks.		
Plumbago —		
Hamburg, 34 cks.		
Salt —		
Rotterdam, 20 bgs.		

EXPORTS OF CHEMICAL PRODUCTS

OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending June 16th.

Acids —		
Cape Town, 10 cs.	£26	
Delagoa Bay, 20	47	
Madras, 4	16	
Alkali —		
Auckland, 9 t. 2 c.	£76	
Ammonia —		
Adelaide, 8 cs.	£12	
Ammonia (Liquid) —		
Cape Town, 1 t.	£39	
Hamburg, 10 dms.	20	
B. Ayres, 24 cs.	29	
Ammonium Carbonate —		
New York, 35 pks.	£195	
Paris, 1 t.	0	
Ammonium Chloride —		
Varna, 18 cks.	£70	
Bourgas, 1 t. 9 c.	47	
Karachi, 15	28	
B. Ayres, 12	21	
Ammonium Sulphate —		
Antwerp, 175 t.	£1,275	
Trinidad, 50	17 c.	385
Las Palmas, 45	246	
Amsterdam, 374	2	3,134
Madeira, 20	9	175
Castellon, 105		840
Cullera, 150		1,200
Valencia, 115		920
Ammonium Sulphocyanide —		
Philadelphia, 10 cks.	£149	
Arsenic —		
Napier, 22 pks.	£24	

Bleaching Powder —		
Rio de Janeiro, 8 c.	£27	
Boracic Acid —		
Wellington, 1 t.	£29	
Borax —		
Wellington, 10 c.	£11	
Dunedin, 20 cks.	20	
Carbolic Acid —		
Ludwigshafen, 25 cks.	£101	
Sydney, 30 dms.	27	
Bombay, 5 cs.	25	
Philadelphia, 6	23	
Pt. Elizabeth, 4	13	
Carbonic Acid Gas —		
Jersey, 60 tubes	£23	
New York, 18 cs.	100	
Caustic Potash —		
Townsville, 2 t. 3 c.	£63	
Caustic Soda —		
Pt. Elizabeth, 13 c.	£14	
Sydney, 4	7	
Wellington, 10	9	
Hong Kong, 2 t. 18	26	
Nooumea, 6	10	
Philadelphia, 200	17	1,900
Dunedin, 1	9	34
Lyttelton, 7	7	51
Durban, 11	11	11
Pt. Chalmers, 1	17	
Chemicals (otherwise undeciphered)		
Yokohama, 10 cks.	£61	
Gibraltar, 5 cs.	75	
Singapore, 19 pks.	82	
Hamburg, 30	400	
Wellington, 8	52	128
Auckland, 20 kgs.	71	311
Boulogne, 14	34	
Cadix, 2	23	
Bombay, 13 dms.	10	

Sydney, 1	20	
Calcutta, 7	38	
Lisbon, 8	111	
Melbourne, 5	58	
Citric Acid —		
Hamburg, 7 cks.	53 kgs	£397
New York, 1 cs.	1	6
E. London, 1 cs.	1	8
Bombay, 4	1 c.	25
St. Petersburg, 3	15	454
Brisbane, 1	2	7
Durban, 1	2	14
Brussels, 23	139	
Antwerp, 1 ck.	30	
Amsterdam, 1	5	60
Laghorn, 10	57	
Pt. Elizabeth, 1	1	13
Newcastle, 1	1	6
Karachi, 1	10	
Odessa, 10	58	
Cologne, 1 ck.	31	
Seville, 4	23	
Rotterdam, 10	57	
Malaga, 1	6	
Coal Products —		
Alizarine		
Boston, 10 cks.	£103	
Melbourne, 20 kgs.	130	
St. Petersburg, 6 cs.	378	
Aniline		
Otago, 1 cs.	£7	
Calcutta, 3	148	
Melbourne, 2 pks.	42	
Aniline Oil		
New York, 10 dms.	£350	
Brussels, 1	40	
Aniline Salts		
New York, 34 cks.	£900	
Anthracene		
Ruhrort, 365 cks.	£2,500	

Benzol		
Rotterdam, 48 cks. 20 pms.		
Calais, 50		
Hamburg, 90 pms. 29 mts.		
Creosote		
New York, 500 cks. 2 cs.		
N. Orleans, 1,441		
Creosote Salts		
Philadelphia, 695 bgs.		
Dyes		
Boston, 7 cks.		
Naphtha		
Canterbury, 50 dms.		
Otago, 25		
Melbourne, 10		
Naphthaline		
Hamburg, 1,533 bgs.		
Paris, 300		
Alexandria, 7 cks.		
Pitch		
Newport News, 1,030 bgs.		
Duisburg, 145 t.		
Dunkirk, 220		
Halifax, 50 cks.		
Alexandria, 650 brls.		
Pyridine		
Hamburg, 4 dms.		
Pyridine Bases		
Malmo, 6 cks.		
Tar		
Melbourne, 200 dms.		
Napier, 25		
Durban, 350		
St. Lucia, 8 bts.		
Pt. Elizabeth, 550		
Brisbane, 50		
Archangel, 10 cks.		
Rotterdam, 36		
Toluol		
Rotterdam, 25 cks.		

ducts (otherwise undes.)—	
6 brls.	£6
Sulphate—	
10 t.	£155
4 1 c.	65
1 10	25
5	6
10	165
10	170
36 16	958
20	360
20	371
Tartar—	
20, 1 t. 3 c.	£12
1, 10 kgs.	84
Ants—	
67 pks.	£90
100 dms.	78
36 100 5 cks.	11
5	70
10 cs.	46
5 20	82
9	91
23	28
19	57
25	24
50	250
Acid—	
1 t. 4 c.	£27
210 4	885
2	58
15	157
10 30	30
20 1	65
15	160
550	4,400
Acid—	
10 cs.	£10
30 cks.	15
Acid—	
30 carboys	£28
Acid—	
1 t. 1 c.	£34
Acid—	
2 cs.	£28
2	28
3	13
Acid—	
17 c.	£28
1 t. 8	52
6	8
Crystals—	
1 ck.	£25
Bichromate—	
4 cks.	£50
10 c.	20
Carbonate—	
1 t. 10 c.	£39
Chlorate—	
5 t.	£174
Cyanide—	
10 cs.	£87
1 t.	259
10 cks.	29
3	250
Prossiate—	
4 cks.	£54
5	19
1	21
Acid—	
2 cs.	£9
Acid—	
95 t.	£50
Acid—	
13 c.	£13
10	51
4 18	98
12	11
Acid—	
65 pks.	£53
Acid—	
2 t. 15 c.	£14
1 10	5
Crystals—	
3 t. 5 c.	£10
1 12	5
1 6	12
B carbonate—	
5 t. 9 c.	£25
1 5	10
10	9
Hyposulphite—	
1 t. 2 c.	£10
16	73
Nitrate—	
20 t.	£172

Sodium Sulphate—	
Ghent, 50 t.	£75
Sulphuric Acid—	
St. Lucia, 2 t.	£12
Beira, 4 12 c.	30
Tartaric Acid—	
Bombay, 4 c.	£22
St. Petersburg, 5	19
Toronto, 11	58
Nelson, 3	19
Durban, 6	40
Valencia, 6	28

LIVERPOOL.

Period ending June 16th.

Acetic Acid—	
Lisbon, 1 t. 1 c.	£15
Alum—	
Havana, 8 t.	£25
Latakia, 1	5
Vigo, 1	1
M. Video, 20 19	58
Seville, 5 12	26
Montreal, 15 15	12
Varna, 4 6	20
Ammonium Carbonate—	
Newcastle, 1 t. 15 c.	£24
Nantes, 1 t.	29
Marseilles, 1 17	69
Rotterdam, 1	25
Ammonium Chloride—	
Antwerp, 1 t. 11 c.	£70
Seville, 10	15
Mollendo, 1 3	4 q.
Bombay, 6 15	198
Genoa, 2 5	70
Catania, 4	6
Leghorn, 15	28
Sanisoun, 3	92
Ammonium Sulphate—	
Messina, 10 t.	£78
New York, 25	213
Malaga, 50 10 c.	375
Gd. Canary, 9 19	79
Valencia, 42 7	400
Las Palmas, 35	277
Barium Sulphate—	
Halifax, 16 t.	3 q. £57
Bleaching Powder—	
Baltimore, 140 cks. 25 bxs.	
Boston, 361	
B. Ayres, 9	
Genoa, 30	
Ghent, 75	
Leghorn, 45	
Libau, 25 brls.	
Lisbon, 20	
Montreal, 27 50	
Naples, 39	
Newport News, 198	
New York, 523	
Rouen, 45	
Seville, 27	
Varna, 12	
Venice, 18	
Vera Cruz, 69 brls.	
Belize, 8 c. 3 q.	£10
Boric Acid—	
Genoa, 1 t.	£30
Rotterdam, 4 2 c. 1 q.	112
Amsterdam, 5	8
Borax—	
Copenhagen, 2 t. 18 c. 2 q.	£50
Seville, 2 6	37
Caciz, 1 13	25
Montreal, 20 2	339
Genoa, 8 17	169
Rotterdam, 2 11	50
Vera Cruz, 1	18
Venice, 4 18	92
Genoa, 48 cs.	
Antwerp, 14 18	266
Galatz, 10 9	
Hamburg, 10 2	10
Stettin, 16 3	16
Malaga, 1	18
Bromine—	
Tientsin, 3 c. 2 q.	£23
Calcium Chloride—	
Rangoon, 5 t.	£10
Boston, 50 5 c.	96
Carbolic Acid—	
Hong Kong, 2 c. 3 q.	£4
New York, 10 cks.	80
Baltimore, 10 t. 3	591
Rotterdam, 5	16
Boca, 1 16	35
B. Ayres, 4 2	8
Hamburg, 10 6	625

Old Calabar, 8 dms.	7
Dunkirk, 6 7 3	246
Rouen, 7 16 3	375
Caustic Potash—	
Baltimore, 5 t. 4 c.	£137
Caustic Soda—	
Acajutla, 30 dms.	
Alexandria, 30	
Amsterdam, 30	
Ancona, 25	
Antwerp, 53	
Baltimore, 290 15 bls. 60 pks.	
10 bxs.	
Barcelona, 357 50 cks.	
Barilla, 50	
Bombay, 15	
Bremen, 5 brls.	
B. Ayres, 50	
Carril, 10	
Coronel, 25	
Delagoa Bay, 11 cs.	
Fairwater, 104	
Fiume, 16	
Fremantle, 20	
Galatz, 24 26	
Geffe, 26	
Genoa, 141	
Gothenburg, 5 5	
Hamburg, 30	
Hiogo, 888	
Hong Kong, 31	
La Guayra, 40	
Libau, 18	
Lisbon, 196	
Malaga, 121	
Manila, 50	
Montreal, 150	
Nagasaki, 200	
New York, 717	
Oporto, 185	
Paris, 82	
Pernambuco, 130	
Philadelphia, 50	
Quebec, 101 pks.	
Rio de Janeiro, 15	
Rotterdam, 115	
Rouen, 70	
San Sebastian, 14	
Santander, 14	
Seville, 485	
Stettin, 120	
Stockholm, 20	
Syra, 20	
Tampico, 189	
Tarragona, 40	
Toronto, 50	
Trieste, 45	
Valencia, 170	
Venice, 8	
Yokohama, 200	
Chemicals (otherwise undes.)—	
Bombay, 5 t. 5 c.	£190
Naples, 10	15
Catania, 6	9
Belize, 16 cks. 1 cs.	54
Calcutta, 18 5	132
Boston, 39 6	211
Christiania, 14	20
Bremen, 4 5	
Montreal, 10 3 1 q.	105
China Clay—	
Baltimore, 200 cks.	
Barcelona, 80	
Bombay, 120	
Boston, 1,469	
Halifax, 22	
Lisbon, 120 bgs.	
Madras, 160	
Malaga, 20	
Montreal, 160	
Philadelphia, 110	
Chromium Acetate—	
Naples, 10 c.	£23
Citric Acid—	
Ponce, 2 c. 1 q.	£16
Coal Products—	
Alizarine	
Libon, 4 cks.	
Aniline Co.ours	
Melbourne, 3 cs. 9 kgs.	
Aniline Dyes	
Barcelona, 3 cs.	
Aniline Salts	
Montreal, 7 cs.	
Anthracene	
Rotterdam, 129 cks.	
Cresote Oil	
New Orleans, 1 cs.	
Naphtha	
Melbourne, 50 dms.	
Pitch	
Montreal, 17 brls.	
Tar	
Bathurst, 10 dms.	
Bordeaux, 200 cks.	

Boston, 2	
Conakry, 30 brls.	
Lome, 10	
Philadelphia, 200	
Ponce, 2	
Sierra Leone, 10	
Tar Salts	
Copenhagen, 2 bgs.	
Copper Sulphate—	
Konigsberg, 18 c.	£15
Rotterdam, 4 t. 12	70
Bilbao, 1	19
Batoum, 5 18	99
Odessa, 9 8 2 q.	147
Venice, 9 18	161
Bombay, 5	80
Christiania, 1 9	24
Amsterdam, 1 3 1	18
Ghent, 5 1 2	84
Messina, 19	15
Ibrail, 7	112
Galatz, 3	48
Talcahuano, 4 10 1	73
Nantes, 20 4 2	374
Antwerp, 19	16
Cette, 19 6	318
Valparaiso, 10 7 1	165
Danzig, 6 18 1	116
Newfairwater, 10 7 2	159
Genoa, 15 3 2	250
Naples, 5 3 1	83
Trieste, 60 1	1,008
Hamburg, 9 17 2	153
Fiume, 34 19 1	589
Bordeaux, 249 11 2	4,415
Copperas—	
Sydney, 1 t.	£3
B. Ayres, 2	4
Cream of Tartar—	
St. John's Nfld., 5 c. 2 q.	£21
Disinfectants—	
Calcutta, 2 cs 32 cks 5 dms.	£14
Kurrachee, 1 t. 10 c.	16
Rangoon, 1	5
Guano—	
Malaga, 58 t. 7 c. 2 q.	£532
Iron Oxide—	
New York, 12 t.	£40
Genoa, 14 1 c.	97
Lime—	
Cape Coast, 3 t. 8 c.	£8
Magnesia—	
Stockholm, 40 cs.	
Sydney, 5	
Vera Cruz, 6	
Magnesium Sulphate—	
Callao, 100 kgs.	
Guayaquil, 4 cs.	
Lisbon, 10 cks.	
Manure—	
Las Palmas, 50 t. 10 c.	£372
Oxalic Acid—	
Boston, 3 t. 8 c. 2 q.	£90
Paint—	
Algiers, 1 ck. 9 dms.	
Axim, 25 kgs.	
Benguella, 9 brls.	
Beyrout, 12	
Cabenda, 20	
Cienfuegos, 1	
Constantinople, 100	
Curacao, 60	
Ferrol, 30	
Genoa, 12	
Gibraltar, 13	
Gd. Canary, 15	
Hiogo, 280	
Jersey, 10 pks.	
Larnaca, 2	
Las Palmas, 115	
Loango, 4 brls.	
Manila, 11	
Mosamedes, 8	
New York, 50	
Panama, 23 pks.	
Para, 100	
Pernambuco, 97 23	
Philadelphia, 154	
Pisco, 2	
Porto Rico, 7	
Rotterdam, 320 17 brls.	
St. John's, 30	
Shanghai, 160	
Sierra Leone, 97	
Singapore, 50 bgs.	
Stettin, 80	
Sydney, 1	
Tampico, 8	
Toronto, 150	
Trieste, 69 cs.	
Valparaiso, 100 12	
Vera Cruz, 69 cs.	

Victoria,	65	
N. Orleans,	4	250
Painters' Colours—		
Accra,	51	kgs.
Akassa,	18	
Alexandria,	20	cks.
Bahia, 35 pks. 2 cs.	10	40 dms.
Barcelona,	5	
Bilbao,	22	
Calcutta,	5	
Carupano,	100	
Cienfuegos,	12	
Constantinople,	1	1 bx.
Fremantle,	1	12 5 dms.
Galatz,	300	
Gibraltar,	1	75 pks.
Göthenburg,	1	135 bgs.
Gd. Canary,	18	
Hamburg,	100	
Havana,	5	100
Havre,	4	
Hong Kong,	300	9 tes.
Leghorn,	25	
Madras,	2	
Manaos,		2 brls.
Manila,	24	100
Molendo,	10	
Paraffin Wax—		
Alexandria,	20	cks.
Constantinople,	5	25 bgs.
Genoa,	5	
Phosphorus—		
Hong Kong,	5	c. £65
Potash—		
B. Ayres,	12	c. £10
Potash Salts—		
N. Orleans,	13	t. 2 c. 3 q. £836
Potassium Bichromate—		
Sydney,	3	c. 1 q. £6
Potassium Carbonate—		
Sydney,	6	c. 1 q. £6
Potassium Chlorate—		
N. W. castle NSW, 10 t.		£301
Hong Kong,	3	97
New Fairwater,	1	10 c. 50
Lisbon,	6	204
Boston,	29	980
Hamburg,	10	338
New York,	90	670
Hiogo,	32	10 1,073
Rotterdam,	1	14 39
Philadelphia,	50	1,007
Potassium Prussiate—		
Naples,	10	c. £30
Genoa,	6	t. 4 2 q. 308
Salt—		
Abonnesia,	40	t. 2 c.
Accra,	7	0
Akassa,	29	13
Antwerp,	190	
Bakana,	50	2
Baltimore,	530	
Barbadoes,	100	
Boma,	5	7
Boston,	450	
Brass,	9	
B. Ayres,	18	4 250 pks
Calcutta,	4,168	
Cape Coast,	21	
Cape Town,	168	15
Christiania,	25	
Conakry,	58	4
E. London,	26	16
Ghent,	255	
Hamburg,	91	3
Jersey,	11	2
Kingston,	166	13
Lagos,	100	
Melbourne,	30	
Monrovia,	22	5
M. Video,	6	
Montreal,	732	7
N. Orleans,	10	
Old Calabar,	90	
Philadelphia,	300	
Punta Arenas,	50	
Pt. Natal,	100	
Quebec,	20	
Rio de Janeiro,	5	
Rotterdam,	210	
Sapeli,	26	15
Sierra Leone,	100	
Sydney,	340	
Newport News,	430	5
Saltpetre—		
Maranham,	12	c. 3 q. £4
Parnahyba,	6	0
Paris,	5	5
Sheep Dip—		
Gallego,	13	c. £25
Boca,	10	25
B. Ayres,	31	t. 14 1,095

Soap—		
Adelaide,		200 cks.
Adjua,	100	bks.
Akassa,	52	
Alexandria,	350	50 cks.
Algoa Bay,	1,050	
Amboina,	1,000	
Ambrizette,		qly.
Antigua,	250	
Axim,	150	
Bakana,	200	
Bangkok,	100	
Barbadoes,	1,050	
Barcelona,		1
Batanga,	50	
Batavia,	3,000	
Bathurst,	40	
Belize,	550	
Boma,	75	
Bombay,	1,210	61
Cabenda,	100	
Calcutta, 250 brls.	250	bds. 131
Cameroon,	450	
C. C. Castle,	70	
Cape Town,	2,711	50
Cette, W. C. A.,	25	
Clarence,	84	
Conakry,	80	
Copenhagen,	140	
Delagoa Bay,	550	13 71
E. London,	1,520	24 35
Gaboon,	160	
Gibraltar,	491	
Gd. Bassa,	50	
Gd. Canary,	542	
Guayaquil,	230	
Havre,		506
Hong Kong,	75	
Iquitos,	50	
Karachi,	1,350	20
Kingston, Jam.,	7,75	
Lagos,	144	6 dms. 2
Lanzarote,	70	
Las Palmas,	700	
Lisbon,		20
Lome,	50	
Madras,		1
Malta,		51
Manaos,	£50	
Manila,		2
Matadi,	354	
Melbourne,	6	
Monrovia,	60	
Mont cal,	1,100	
Mossel Bay,	702	
N. Orleans,	600	3 cks.
New York,	101	10 50
Opobo,	2,500	
Para,	400	
Penang,	10	
Pt. Elizabeth,	1,155	
Pt. Natal,		50
Rangoon,		10
Rotterdam,	2,100	4 0
St. John's,		11
San Juan,	100	
Shanghai,	6,192	
Sierra Leone,		2
Singapore,	197	
Sydney,	200	2,5 4
Tampico,		1
Teneriffe,	130	
Trinidad,	500	
Valparaiso,	370	
Soda—		
Savanilla,	4	kgs.
Soda Ash—		
Adelaide,		68 cks.
Algoa Bay,	30	bgs.
Antwerp,	2,200	10
Baltimore,	1,040	100 tes.
Barcelona,		59
Boston,	5,660	138 182
Bremen,	20	
Brisbane,		177
B. Ayres,		100
Calcutta,	85	brls. 81
Callao,		40
Copenhagen,	350	
Fairwater,	750	
Genoa,	320	
Ghent,	120	
Göthenburg,		37
Hamburg,	175	
Hiogo,		100
Konigsberg,	52	
Maranham,		68 10
Melbourne,		25 1
New York,	3,020	278 tes. 4 2
Philadelphia,	4,128	526 81 bks.
Rio de Janeiro,		22 cks.
Rosario,		20
Rotterdam,	50	
Smyrna,		40 brls.
Stettin,	726	

Sydney,	80	
Wellington,	205	
Yokohama,	200	
Soda Crystals—		
Ancona,		19 cks.
Boston,	616	brls. 390
Calcutta,	33	kgs.
Coquimbo,	15	
E. London,	20	
Malta,	50	
Quebec,	50	
Valparaiso,	34	
Yokohama,	5	
Sodium Acetate—		
Vera Cruz,		3 cks.
Sodium Arseniate—		
Lisbon,		1 ck.
Sodium Bicarbonate—		
Aalborg,	13	kgs. 3 cks.
Adelaide,	100	
Alexandria,	170	6
Amsterdam,	40	
Antwerp,	165	0 bgs. 21
Barcelona,	100	
Bombay,	200	5
Bordeaux,	95	
Bourgas,	40	
Brisbane,	570	40 4
Cadiz,	20	
Calcutta,	1,530	
Cape Town,	21	
Catania,	61	10 2
Christiania,	20	
Colombo,		6
Copenhagen,	170	7 brls. 4
Corunna,		9
Dunedin,	100	
Dunkirk,	7	
Fairwater,	20	
Genoa,	130	47
Ghent,	10	
Halifax,		
Hong Kong,	28	
Jersey,		30
Karachi,	200	
Lisbon,	70	
Madras,	50	
Malta,	20	
Mar-elles,	128	
Melbourne,	590	25
Montreal,	280	50 bgs. 10
Nagasaki,	100	
Naples,	150	
N. Orleans,	200	
Odessa,	200	10
Oporto,	60	
Paris,		4 pks.
Pt. Elizabeth,	100	
Rio de Janeiro,	14	
Rotterdam,	150	
Rouen,		90
Salonica,	50	
Stettin,	25	22
Tampico,	10	
Wellington,	56	
Yokohama,		5
Sodium Chlorate—		
Göthenburg,	40	kgs.
Hamburg,	21	
Philadelphia,	91	
Stettin,	50	
Sodium Hypsulphite—		
Montreal,	76	brls.
Sodium Silicate—		
Calcutta,		6 cks.
Genoa,	3	brls.
Sodium Sulphate—		
Montreal,	66	brls. 28 cks.
Rotterdam,		
Starch—		
Copenhagen,		3 cks.
Strontia—		
Hamburg,	225	t. 1 c. £2,000
Sulphur—		
Jedidah,	3	t. 6 c. £17
Parnahyba,		6 c. 2
Boston,	200	5 851
Montreal,	107	2 510
Sulphuric Acid—		
Maranham,	1	t. 10 c. £16
Superphosphates—		
Las Palmas,	10	t. £30
Cullera,	103	295
Valencia,	250	613
Tartaric Acid—		
Ponce,	3	c. £22
Singapore,	1	ck. 10
Varnish—		
Barcelona,	9	cks.
Calcutta,		80 dms.
Constantinople,	6	cs

Curacao,	1	brl.
Gijon,		4 brls.
Leghorn,		16 cs.
Lisbon,	1	
Madras,		8
Manilla,		2
Seville,		1
Shanghai,		10
White Lead—		
Cape Town,	80	kgs.
Zinc Chloride—		
Montreal,	1	t.
MANCHESTER		
<i>Period ending June 12th</i>		
Alum—		
Tripoli,	35	brls.
Tunis,	5	
Ammonium Chloride—		
Busanrah,	40	brls.
Tripoli,	2	
Aniline Colours—		
Rotterdam,	1	ck. 1 cs
Aniline Oil—		
Hamburg,	4	dms. 2 tins
Antwerp,	12	
Rotterdam,	5	15 1
Aniline Salts—		
Antwerp,	10	cks. 10 brls.
Hamburg,	6	7 puns
Rotterdam,	15	5
Benzol—		
Treport,	23	cks.
Carbolic Acid—		
Rouen,	5	cks.
Chemicals (otherwise un-)		
Hamburg,	10	cks.
Antwerp,	3	10 kgs.
Beyrout,	2	
Rotterdam,	3	
Stettin,	5	10
Copperas—		
Tripoli,	23	brls.
Creosote—		
Treport,	38	cks.
Creosote Salts—		
Treport,	6	cks.
Farina—		
Rotterdam,	40	cks.
Glue—		
Rotterdam,	30	cks.
Antwerp,	10	
Linseed Oil—		
Latakia,	2	brls.
Tunis,	5	
Jaffa,	10	
Mineral White—		
Rio de Janeiro,	20	bgs.
Naphtha—		
Treport,	184	cks.
Naphthylamine—		
Rotterdam,	23	pks
Paint—		
Alexandria,	200	kgs.
Jaffa,		10 p. 3 p
Latakia,	12	
Painters' Colours—		
Latakia,	1	ck. 2 kgs
Paraffin Wax—		
Hamburg,	20	bls
Pitch—		
St. Nazaire,	1,033	t.
Soap—		
Hamburg,	2	pms
Soda Ash—		
Helsingfors,	255	cks.
Tallow—		
Alexandria,	6	tes.
Tar—		
Antwerp,	5	dms.
Tar Oil—		
Hamburg,	4	cks. 3 d
Antwerp,	10	
Tar Salts—		
Copenhagen,	471	kgs.
Toluol—		
Stettin,	30	cks.
Varnish—		
Jaffa,	2	cs.
Latakia,	1	
White Lead—		
Jaffa,	5	brls.
Zinc White—		
Jaffa,	2	brls.

HULL.

Week ending June 12th.

Alum Sulphate—	250 kgs.
Ammonia (Liquid)—	160 bgs.
Asphaltum—	120 dms.
Barytes—	17 cks.
Calcium Carbide—	112 15 cs.
Caustic Soda—	112 87 dms.
Chloroform—	12 cks.
Coal Products (otherwise undescribed)—	300
Creosote Oil—	75 cks. 12 pks.
Diethylene Glycol—	12 1 cs.
Flint—	969 1 580
Iron Oxide—	61 359 albs.
Litharge—	6 8 20 pks.
Magnesia—	10 kgs. 14 7
Naphthaline—	255 cks. 850
Paint—	105
Potash Salts—	24
Pyridine—	3
Soda—	902 c.
Sulphur—	902
Tar—	35
White Lead—	94
Zinc Ashes—	99
Alumina—	150
Ammonia—	820
Barium Nitrate—	531
Barytes—	251
Calcium Carbide—	34
Caustic Soda—	6 brls.
Chloroform—	1 cs.
Coal Products (otherwise undescribed)—	1 kg.
Creosote Oil—	2
Diethylene Glycol—	33 cks.
Flint—	7 c.
Iron Oxide—	444
Litharge—	123
Magnesia—	1,507
Naphthaline—	264
Paint—	4
Potash Salts—	13
Pyridine—	477
Soda—	200
Sulphur—	50 bgs.
Tar—	3 brls.
White Lead—	48 cks. 2 cs. 4 dms.
Zinc Ashes—	60 kgs.
Alumina—	3 73 987 pks.
Ammonia—	50 15
Barium Nitrate—	2 1 62 dms.
Barytes—	9 2 50 pks.
Calcium Carbide—	7
Caustic Soda—	20 1
Chloroform—	1
Coal Products (otherwise undescribed)—	210
Creosote Oil—	6 1
Diethylene Glycol—	13
Flint—	16 7 150 t.
Iron Oxide—	3 cks. 100 t.
Litharge—	1,101 cs.
Magnesia—	1 20 pks.
Naphthaline—	5 cks.
Paint—	6 cks.
Potash Salts—	10 5
Pyridine—	29
Soda—	5
Sulphur—	25
Tar—	25
White Lead—	25
Zinc Ashes—	25

Gothenburg,	4
Hamburg,	1 3 1
Jersey,	1 1 1 pk.
Stettin,	6

GLASGOW.

Week ending June 17th.

Alkali—	Dunedin, 13 c.
Ammonia (Liquid)—	Malta, 691
Ammonium Sulphate—	Philadelphia, 25 t. 11½ c.
Bichrome—	Dunedin, 17 c.
Bleaching Powder—	Dunedin, 8 t. 9½ c.
Boracic Acid—	Melbourne, 629
Borax—	Rotterdam, 8 cks.
Calcium Carbide—	Calcutta, 620
Carbolic Acid—	Rotterdam, 24 cks.
Caustic Soda—	Dunedin, 5 t. 8½ c.
Chemicals (otherwise undescribed)—	Rotterdam, 2 t. 4½ c.
Chloroform—	Port Lyttelton, 631
Coal Products—	Bombay, 626
Coal Products (otherwise undescribed)—	U.S.A., 637
Creosote Oil—	Bayonne, 6543
Diethylene Glycol—	Dunedin, 620
Naphthaline—	Dieppe, 4 t. 15 c.
Naphthaline—	Bayonne, 656
Pitch—	Gothenburg, 6148
U.S.A.,	194
Bombay,	231
Antwerp,	612 t.
Dieppe,	675
Canada,	91 19
Italy,	30
Tar—	430
Karachi,	666. 108.
Christiania,	70 brls.
Danzig,	1,419
Rotterdam,	15
Bombay,	6155
Rangoon,	54
Calcutta,	173
Italy,	25
Madras,	85
U.S.A.,	53
Coal Products (otherwise undescribed)—	Rotterdam, 6423
Cod Oil—	Dunedin, 655
Italy,	77
Cottonseed Oil—	Sydney, 1 t. 1 c.
Extracts—	Sherbrooke, 658
Victoria, Australia,	96
Dunedin,	30
Gelatine—	Canada, 974 lbs.
Dunedin,	637
Idigo—	Queensland, 623
Linseed Oil—	Malta, 2 t. 12½ c.
Logwood—	Sherbrooke, 6161
Dunedin,	96
Oamaru,	86
Manganese—	Basle, 11 t. 15½ c.
Manure—	Durban, 32 t. 10 c.
Oxalic Acid—	Melbourne, 637. 108.
Paint—	Antwerp, 632. 158.
Christiania,	15

Algoa Bay,	29 10
Christchurch,	23
Natal,	25
Painters' Colours—	Bombay, qty.
Brisbane,	640. 138.
Melbourne,	6178
Sydney,	172
Auckland,	25
Canterbury,	96
Cape Colony,	362
Dunedin,	623
Rangoon,	36
Wellington,	20
Colombo,	632
Calcutta,	757
Paraffin Wax—	Christiania, 3 cs.
Skien,	36
Cape Town,	20
Bari,	632
Fiume,	757
Italy,	26
Sicily,	264
Trieste,	81
Venice,	61,288
Potash Salts—	Townsville, 61,288
Potassium Bichromate—	Canada, 6164
Bari,	38
Italy,	442
Venice,	128
Potassium Cyanide—	Adelaide, 6172
Melbourne,	328
Rosin Oil—	Christiania, 5 brls.
Salt—	Brisbane, 350 t.
Soap—	Antigua, 1 t. 8 c.
Rombay,	2 4
Canada,	2 1½
Sodium Bichromate—	Canada, 1 t. 18½ c.
U.S.A.,	12 10½
Italy,	9 7½
Rouen,	20 ¾
Starch—	Rotterdam, 6 c.
Sulphuric Acid—	Rangoon, 6390
Tallow—	Rotterdam, 26 t. 14 c.
Treacle—	Gothenburg, 19 t. 18½ c.
Varnish—	Christiania, 67
Sicily,	35
White Lead—	Pt. Lyttelton, 673
Whiting—	Brisbane, 635
Zinc Ashes—	Rotterdam, 157 bgs.

TYNE.

Week ending June 12th.

Alkali—	Antwerp, 8 t. 8 c.
Riga,	1 16
Alum Waste—	Odense, 11 t.
Ammonia—	Barcelona, 4 t. 8 c.
Antimony—	Hamburg, 7 t. 10 c.
Barcelona,	4 5
New York,	15
Rotterdam,	5
Arsenic—	Barcelona, 4 c.
Barium Binoxide—	Hamburg, 5 t. 16 c.
Barium Nitrate—	Barcelona, 1 t. 3 c.
Barytes—	New York, 17 t.
Bleaching Powder—	Antwerp, 40 t. 10 c.
Hamburg,	5
New York,	7 10
Riga,	138
Rotterdam,	7 5
Borax—	Aarhus, 1 t. 1 c.

Caustic Soda—

Hamburg,	21 t. 4 c.
New York,	209 5
Riga,	7 19
Aalborg,	5
Rotterdam,	10 14
Genoa,	20

Gypsum—

New York,	36 12
Iron Oxide—	Ceara, Brazil, 11 t. 6 c.

Litharge—

Arendal,	12 c.
Riga,	7 t. 7
Hamburg,	5 17

Magnesia—

Antwerp,	1 t.
Hamburg,	2 19 c. 3 q.
Barcelona,	2
Genoa,	2

Naphthaline—

Riga,	25 t. 6 c.
-------	------------

Paint—

Hamburg,	6 t. 5 c.
----------	-----------

Pyridine—

Rotterdam,	1 t. 1 c.
------------	-----------

Soda—

Christiania,	4 t. 19 c.
Arendal,	10
Rotterdam,	30
Bergen,	5 4
Aarhus,	4 16
Leighorn,	18
Genoa,	6 10

Soda Ash—

Bergen,	11 t. 9 c.
Genoa,	10 14

Sodium Hyposulphite—

New York,	10 t.
-----------	-------

Sodium Sulphate—

Barcelona,	5 t. 1 c.
Gothenburg,	295

Sodium Sulphide—

Rotterdam,	1 t.
------------	------

Sulphur—

Gothenburg,	25 t.
-------------	-------

Tallow—

Genoa,	1 t. 18 c.
--------	------------

Tar—

Vardo,	7 t.
--------	------

White Lead—

Riga,	7 t. 1 c.
-------	-----------

GOOLE.

Week ending June 9th.

Alkali—	Amsterdam, 3 cks.
Benzol—	Hamburg, 48 cks
Chemicals (otherwise undescribed)—	Amsterdam, 20 cks.
Ghent,	1
Hamburg,	5
Coal Products (otherwise undescribed)—	Antwerp, 39 cks.
Ghent,	10 5 cs.
Hamburg,	75
Rotterdam,	125 2
Dyestuffs (otherwise undescribed)—	Ghent, 5 cks.
Hamburg,	40
Manure—	Hamburg, 350 bgs.
Pitch—	Antwerp, 403 t.
Dunkirk,	351
Salt Cake—	Ghent, 100 t.

GRIMSBY.

Week ending June 12th.

Alkali—	Malmö, 1 ck.
Chemicals (otherwise undescribed)—	Antwerp, 10 cks.
Dieppe,	3 1 cs.
Coal Products (otherwise undescribed)—	Dieppe, { 30 cks. 24 brls.
Hamburg,	{ 6 kgs. 4 pks.
Dyestuffs (otherwise undescribed)—	Dieppe, 9 cks.

PRICES CURRENT.

WEDNESDAY, JUNE 23RD, 1897

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

		£	s.	d.
Acetic, 25% and 40%	per cwt.	5/10½	&	8/9
" Glacial	"	40/-		
Arsenic S.G., 2000°	"	1	4	0
Fluoric	per lb.	0	0	3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1¾
Nitrous	"	0	0	1¾
Oxalic	nett	0	0	3½
Phosphoric, 1750°	"	0	0	11½
Picric	"	0	0	11
Sulphuric (fuming 50%)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	7	6
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	2½
Tartaric	"	0	1	1
Arsenic, white powdered	nett per ton	22	5	0
Alum (loose lump)	"	4	10	0
Alumina Sulphate (pure)	"	4	2	6
Aluminoferic	"	2	3	6
Aluminium (Ingot metal 98/99¼%)	nett per cwt.	7	17	6
Ammonia, Anhydrous	per lb.	0	1	3
" 880=28° B.	"	0	0	2¾
" =24° B.	"	0	0	1¾
" Carbonate	nett	0	0	3
" Muriate	per ton	18	5	0
" (sal-ammoniac) 1st & 2nd	per cwt.	33/-	&	31/-
" Nitrate	per ton	32	0	0
" Phosphate	per lb.	0	0	4½
" Sulphate (grey) London	per ton	7	10	0
" (grey) Hull	"	7	8	9
Aniline Oil (pure)	per lb.	0	0	6¾
Aniline Salt	"	0	0	6¼
Antimony	per ton	30	15	0
" (tartar emetic)	per lb.	0	0	9
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	12	6
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	42/6	to	65/-
Bleaching Powder, 35%	nett	6	7	6
" Liquor, 7%	"	3	10	0
Bisulphide of Carbon	"	12	0	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	"	15/-	to	30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	nett per lb.	0	0	6¼
Magenta	"	0	3	0
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0	0	6½
Benzol, 90's	per gallon	0	1	11
" 50/90	"	0	2	0
Carbolic Acid (crude 60°)	per gallon	0	2	0
" (crystallised 40°)	per lb.	0	0	7¾
" (liquid 95/97%)	per gallon	0	1	0
Creosote (ordinary)	"	0	0	2
" (filtered for Lucigen light)	"	0	0	2½
Crude Naphtha 30% @ 120° C.	"	0	0	11
Grease Oils, 22° Tw.	per ton	2	15	0
Pitch, f.o.b. Liverpool or Garston	"	1	1	0
Solvent Naphtha, 90% at 160°	per gallon	0	1	7
Copper	per ton	49	8	9
" Sulphate	"	16	5	0
" Oxide (copper scales)	"	44	10	0
Glycerine (crude)	"	31	0	6
" (distilled S.G. 1250°)	"	62	0	0
Iodine	nett, per oz.	0	0	7½
Iron Sulphate (copperas)	per ton	1	10	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	13	2	6
" Litharge Flake (ex ship)	"	14	15	0
" Acetate (white)	"	22	0	0
" brown	"	15	0	0
" Carbonate (white lead) pure	"	16	15	0
" Nitrate	"	19	0	0

Lime, Acetate (brown) (ex ship)	per ton	5	2	6
" (grey) (ex ship)	"	8	5	0
Magnesium (ribbon and wire)	per oz.	0	2	3
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Calcined Magnesia	per ton	9	0	0
" Sulphate (Epsom Salts)	per ton	2	15	0
Manganese, Sulphate	"	16	0	0
" Borate	per cwt.	2	10	0
" Ore, 70%	per ton	3	10	0
Methylated Spirit, 61° O.P.	per gallon	0	1	8
Naphtha (Wood), Solvent	"	0	2	8
" Miscible, 60° O.P.	"	0	3	3

Oils:—				
Cotton-seed	per ton	15	10	0
Linseed	"	16	10	0
Stearine	per ton	19	10	0
Phosphorus (yellow)	per lb.	0	2	2
" (red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
" Bichromate	nett	0	0	4½
" Carbonate, 90% (ex ship)	per ton	16	12	6
" Chlorate	per lb.	0	0	4
" Cyanide, 98%	"	0	0	10½
" Hydrate (Caustic Potash) 90%	per ton	24	0	0
" (Caustic Potash) 75/80%	"	20	15	0
" (Caustic Potash) 70/75%	"	19	15	0
" Nitrate (refined)	per cwt.	1	1	6
" Permanganate	per cwt.	3	15	0
" Prussiate Yellow	per lb.	0	0	5½
" Sulphate, 90% (ex ship)	per ton	9	15	0
" Muriate, 80% (do.)	"	8	10	0
Silver (metal)	per oz.	0	2	3½
Sodium (metal)	per lb.	0	2	11
" Carb. (refined Soda-ash) 48%	nett per ton	4	15	0
" (Caustic Soda-ash) 48%	"	4	5	0
" (Carb. Soda-ash) 48%	"	4	0	0
" (Alkali) 58%	"	3	17	0
" (Soda Crystals)	"	2	5	0
" Acetate (ex-ship)	"	12	5	0
" Arseniate, 45%	"	14	7	6
" Chlorate	per lb.	0	0	4½
" Borate (Borax)	nett, per ton	16	0	0
" Bichromate	per lb.	0	0	1¼
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	"	9	0	0
" (74% Caustic Soda)	"	8	2	6
" (70% Caustic Soda)	"	7	2	6
" (60% Caustic Soda)	"	6	2	6
" (pure liquor 90° Tw.)	"	3	12	6
" 77/78% powdered (99% hydrate)	"	12	15	0
" Bicarbonate	"	6	10	0
" Hyposulphite	"	5	0	0
" Manganate, 25%	"	15	0	0
" Nitrate (95%) ex-ship Liverpool	per cwt.	0	7	6
" Nitrite, 98%	per ton	30	0	0
" Phosphate	"	11	0	0
" Silicate (glass)	per ton	4	10	0
" (liquid, 100° Tw.)	"	3	10	0
" Stannate, 40%	per cwt.	3	2	9
" Sulphate (Salt-cake)	per ton	0	19	0
" (Glauber's Salts)	"	1	7	6
" Sulphide	"	6	15	0
" Sulphite	"	5	0	0
Strontium Hydrate, 100%	"	3	0	0
Sulphocyanide Ammonium, 95%	per lb.	0	0	6¼
" Barium, 95%	"	0	0	4¼
" Potassium	"	0	0	6¼
Sulphur (Flowers)	per ton	7	10	0
" (Roll Brimstone)	"	6	10	0
" Brimstone: Best Quality	"	4	12	6
Superphosphate of Lime (26%)	"	2	5	0
Tallow	"	18	0	0
Tin Crystals	per lb.	0	0	4¼
" English Ingots	per ton	6	0	0
Zinc (Spelter)	"	17	5	0
" Chloride (solution, 100° Tw.)	"	4	17	6
" Sulphate, Crystal	"	3	2	6

INDEX.

VOL XX.

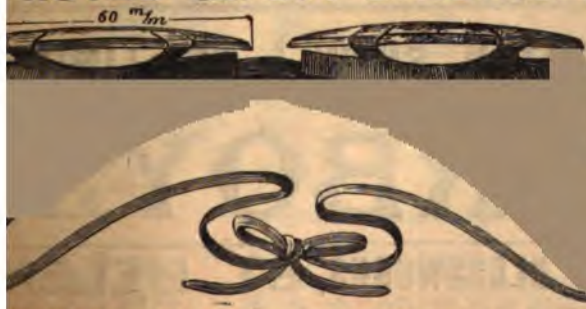
A		Page		Page		Page	
Ads. Cars ..	51	Drying, etc., Superphosphates—	347.	Pigments, Improved ..	395	Advertising Abuses, Checking ..	394
Ads. Cements ..	51	175, 331.		Pipes, Acid-Resisting Joints for ..	207	African Gold Recovery ..	394
Ads. Purifying ..	143	Drying White Lead, etc. ..	299	Precious Metals, Recovering ..	283	" Saltpetre Co., Ltd. ..	318
Ads. Packing for ..	379	Dust, Separating, etc. ..	303	Precious Metals from Solutions,		Agricultural Analysis, Tables for use	
Ads. Alkaline Silicates ..	159	Earth Metals, Carbides of ..	427	Recovering ..	347	in ..	67, 82, 129, 194, 254
Ads. Yining ..	303	Effervescent Beverages, Chemicals		Precipitating Sewage ..	79, 159	Agricultural Insects ..	5
Ads. Aluminate and Barium		for ..	18	Precipitants for Sewage ..	207, 267, 411	" Value of Ammonium	
Ads. ..	331	Electric Treatment of Alloys ..	299	Printing Inks Improved ..	395	Sulphate ..	334
Ads. ..	127	Electrical Gas Reaction Apparatus,	4	Production, etc., of Nitrate of		Algerian Phosphate Shipments ..	179
Ads. ..	111	Electrodes of Manganese and Car-		Ammonia ..	159, 191	Alkali and Bleach ..	125
Ads. from Blast Furnace		bon ..	191	Purifying Alcohol ..	393	" Exports:—81, 131, 193	
Ads. ..	235	Electrolysed Chloride Solutions ..	36	Purifying and Deodorizing Butter,		288, 333, 397	
Ads. ..	299	Electrolysis, Improvements in ..	379	etc., Apparatus for ..	36	Alkali Works, The Cheshire, Sold ..	207
Ads. ..	235	Electrolysis of Soluble Salts ..	315	Purifying and Liquefying CO ₂ ..	175	" Fire at ..	382
Ads. ..	331	Electrolysis. Zinc and Alkali by ..	207	Pyritic Ores Chlorinating ..	347	Alloys Research Committee ..	219
Ads. ..	315	Electrolytic Apparatus ..	95, 191	Recovering Cyanides ..	127	Almighty Dollar, The ..	313
Ads. ..	251	Evaporating Water ..	175	Refractory Bricks ..	331	Almonds, Artificial ..	378
Ads. ..	363	Evaporators, Discharging Salts,		Respirator for Smoke, etc. ..	427	Alsing Pulveriser, The ..	298
Ads. Nitrate Purification,		etc., from ..	79	Retort Carbon, Removing ..	235	Alumina v. Ferric Salts for Sewage ..	84
Ads. ..	191, 159	Extracting Gold ..	4, 95	Salt from Brine ..	267, 283, 379	Amalgamation in Cement Trade ..	22
Ads. ..	191	Extraction of Sugar ..	127	Salt, Treating ..	251	" The Whitworth-Arm-	
Ads. ..	36	Fast Colours with Titanium ..	143	Saturator for Ammonium Sulphate	191	strong ..	24
Ads. ..	36	Ferrocyanides from Sulphocyanides	79	Separation and Purification of		Amendment of Food and Drug Act ..	97
Ads. ..	36	Fertilizers ..	267	Colouring Matter ..	36	America, Bauxite Mining in ..	78
Ads. ..	36	Fertilizers, Phosphatic ..	191	Sewage Filtering ..	(2) 143, 315	" Mineral Production in ..	98
Ads. ..	4	Fibrous Materials Steeping ..	95	Sewage Filtering Materials ..	411	American Enterprise in Peru ..	100
Ads. Making CO ₂ ..	175	Filter Packings ..	411	Sewage Precipitants ..	207, 267, 411	" Opinion on Flashpoint of	
Ads. Preparing Oxygen—	159,	Filtering, etc., Bicarbonate of Soda	235	Sewage Precipitation Tanks ..	79, 159	Oils ..	138
Ads. ..	36	Filtering Sewage ..	(2) 143, 315	Sewage Sludge, Treating ..	283	" Tariff, The 141, 223, 381, 398, 409	
Ads. ..	36	Fire-Damp Detecting ..	19	Sewage Treatment ..	175, 191	Ammonia Liquid from Gas Liquor ..	272
Ads. ..	111	Fish Offal Treating ..	251	Silica Bricks ..	331	" Soda Trade Monopoly ..	180
Ads. ..	219	Fish, Oils from ..	159, 267	Silicates and Acids ..	159	" and Tar Market:—9, 24, 69, 84	
Ads. ..	207	Flannel, Soap for ..	18	Sludge, Treating ..	283	100, 116, 132, 148, 163, 180	
Ads. ..	251	Food from Molasses ..	143	Smoke, etc., Respirator for ..	427	196, 208, 224, 240, 250, 272	
Ads. ..	235	Fuel, Liquid ..	235	Soap, Disinfecting, etc. ..	283	280, 304, 320, 336, 352, 368	
Ads. ..	235	Fumes, etc., Condensing ..	379	Soap for Flannel ..	18	384, 401, 416, 432	
Ads. ..	18	Galvanising, Improvements in ..	79	Soap Manufacture ..	267	Analysis of Fertilisers, etc. ..	224
Ads. ..	4	Gas Carbon, Scaling ..	235, 347	Soda Residues, Caustic from ..	127	Andersonian Chemical Society ..	9, 250
Ads. ..	219	Gas Manufacture ..	219	Softening Leather ..	395	Anglesey, Nitroglycerine Factory at ..	266
Ads. ..	379, 367, 283	Gaseous Mixtures, Separating ..	143	Softening Water ..	79	Anglo-American Arbitration Treaty ..	320
Ads. ..	219	Gases, Alkaline Salts from ..	235	Stone, Artificial ..	(2) 111	Anglo-Sicilian Sulphur Co. ..	144
Ads. ..	363	Gases, H ₂ S from ..	411	Sugar Extraction ..	127	Aniline Dyes in Sweets ..	282
Ads. ..	219	Glover Towers, Improvements in ..	395	Sulphate Saturator ..	191	Answers to Correspondents:—223, 317,	
Ads. ..	219	Glover Towers, etc., Packing ..	379	Sulphide of Aluminium ..	315	330, 365, 384, 396	
Ads. ..	219	Gold Extraction ..	4, 95	Sulphide of Lead Pigment ..	191	Antitoxine ..	410
Ads. ..	219	Gold from Solutions, Obtaining ..	235	Sulphides, Treating ..	347	Anti-Trust Movement ..	132
Ads. ..	219	Hides, etc., Treating ..	95, 111, 207	Sulphocyanides, Ferrocyanides from	79	Appliance, Transport, Works ..	54
Ads. ..	219	Hydrogen, Producing ..	299	Sulphur from H ₂ S ..	347	Appliances, Gas Furnaces and ..	65
Ads. ..	219	Hydrogen Sulphide, Extracting ..	411	Superphosphates, Drying, etc.		Argentine, Trade of ..	127
Ads. ..	219	" Sulphur from ..	347	Tanning ..	4, 175, 347, 331	Arkansas, Manganese ..	8
Ads. ..	219	Improvements in Galvanising ..	79	Testing Butter ..	95, 111, 207	Artificial Almonds ..	378
Ads. ..	219	Incandescent Mantles, Coating ..	418	Titanium for Fast Colours ..	299	" Diamonds ..	8
Ads. ..	219	Incrustation of Boilers, Preventing ..	4	Towns' Refuse, Treating ..	143	As others see us ..	22
Ads. ..	219	Joints for Acid Pipes ..	207	Treating Materials with Liquids ..	315	Association, British ..	38
Ads. ..	219	Lead Carbonate, Basic ..	207	Treating Sewage ..	95	Atlas Chemical Co.'s Library ..	333
Ads. ..	219	Leather Softening ..	395	Turpentine from Wood ..	175, 191	Australia, Manufacture of Cordite in	24
Ads. ..	219	Liquids, Gas from ..	219	Varnish, Manufacturing ..	127	" Phosphorus for ..	331
Ads. ..	219	Manufacture of White Arsenic ..	36	Water, Evaporating ..	175	Australian Decision on Cyanide	
Ads. ..	219	Manufacturing Varnish ..	18	Water, Softening ..	427	Patents ..	400
Ads. ..	219	Manure from Feces ..	427	White Arsenic, Manufacture of ..	36	" Gold Recovery Co., Ltd. ..	221
Ads. ..	219	Manure, Moss Litter ..	395	White Lead, Drying, etc. ..	299	" Tanning Materials ..	219
Ads. ..	219	Materials for Effervescent Beverages	18	" Manufacture of (2) 411		Australasia's Gold Output ..	34
Ads. ..	219	Metals and Cyanides, etc., from Ores	251	(Sulphide) ..	191		
Ads. ..	219	Metals, Protecting ..	283	Wood, Turpentine from ..	127		
Ads. ..	219	Metals, Recovering Precious ..	283	Zinc and Alkalies by Electrolysis ..	207		
Ads. ..	219	Molasses, Food from ..	143	Zinc Oxide Manufacture ..	111		
Ads. ..	219	Moss Litter, Treating ..	395	Zinc from Spent Liquors ..	315		
Ads. ..	219	Nitrites of Soda and Potash ..	111	Abuse of the Patent Law ..	271, 286, 378		
Ads. ..	219	Nitro-benzene and Water Glass ..	427	Abuses, Checking Advertising ..	394		
Ads. ..	219	Nitrogen Fixing ..	251	Acetylene and Calcium Carbide	109, 131		
Ads. ..	219	Nitrogenous Substances, Treating	251	Accident at a Chemical Works ..	415		
Ads. ..	219	Offal, Treating ..	251	Petroleum, Fatal ..	24		
Ads. ..	219	Oil from Fish ..	159	Acids, Carriage of ..	96		
Ads. ..	219	Oils, Recovery of ..	267	Acid Cooler, Improved ..	40		
Ads. ..	219	Oxide of Zinc Manufacture ..	111	Address, Changes of ..	224, 240		
Ads. ..	219	Oxygen, Preparing ..	159, 251	Adulteration of Foods and Drugs	384, 429		
Ads. ..	219	Packing Acid Towers, etc. ..	379	" in Manchester ..	320		
Ads. ..	219	Paint Cleaner ..	395	" of Raw Rubber ..	378		
Ads. ..	219	Percarbonates by Electrolysis ..	331	Adulteration of Sumach ..	351		
Ads. ..	219	Petroleum Residues as Fuel ..	235				
Ads. ..	219	Phosphatic Fertilizers ..	191				

Boiler Explosion	116	Coal Bed, The Kent Calais	196	English Rails for Mexico	367	Glasgow Physical Society	175	
Inspection Bill	298, 353	Field, The Kent	383	Esparto in 1896	113	Glass Works, Close of Socialistic ..	371	
Bookshelf, Our—		Output	351	Essays, Technical Prizes for ..	384	Gold from Cyanide Liquors	214	
Catalogues and Directories ..	145, 236	Production, The World's	196	Estimation of Sulphur in Cl ..	20	Medal, The Harben	3	
Chemical Recipes, <i>Atlas Chem. Co.</i>	65	Trade and Employers' Liability ..	384	Ether Drinking	84	Output, Australasia	4	
Chemistry for Beginners, <i>E. Hart</i>	236	Coke Ovens, More	178	European Petroleum Co., Ltd. ..	399	Production, 97, 155, 224, 231, 237	231	
Chemistry for Engineers and Manu-		Ovens Stopped	237	Exhibits at the R.A.S.E.	430	Recovery, African	35	
facturers, <i>Blount and Bloxam</i>	65	Colours, Paints and Oils	41	Experts, Hawkers as	217	Patents, The	36	
Development of the Periodic Law, <i>P. Venables</i>	145	Combustion, Spontaneous	6	Explosion, a Benzoline	223	Goole Exports—15, 31, 75, 91, 105, 125	125	
Gases of the Atmosphere, <i>W. Ramsay</i>	236	Commissions, Secret	125	at a Blast Furnace	78	139, 155, 171, 187, 203, 215, 231, 247	247	
Kalender für Chem.-Technische ..	145	Companies' Reports—84, 144, 160, 192	351	at a Cartridge Works	288	263, 279, 295, 311, 327, 343, 359, 375	375	
<i>Dr. Neuberg</i>	145	220, 238, 256, 284, 301, 318, 334, 351	351	of Dynamite	21	391, 407, 423, 439	439	
Lubricating Oils, Fats, & Greases, <i>G. H. Hurst</i>	65	Composition of Red Lead	284	Fatal	131, 358, 381	Goole Imports—13, 28, 73, 88, 104, 120	120	
Manufacturers' Practical Up-to-		Continental Improvements in Vacuum	35	of Nitroglycerine	162	136, 152, 168, 184, 200, 212, 228, 244	244	
Date Recipe Book, <i>L. Jameson</i>	236	Pumps	35	at a Steel Works at Rother-	288	260, 276, 292, 308, 324, 340, 356, 372	372	
Metallic Alloys, <i>W. T. Brant</i> ..	65	Copper Sulphate Shipments ..	300, 416	Explosives and Chemicals in Greece ..	22	389, 404, 421, 436	436	
New Course of Experimental		Cordite Case Decision	180	in Mines	352	Greece, Chemicals and Explosives in ..	22	
Chemistry, <i>J. Castell-Evans</i> ..	145	Experiments	130	Exports for	81	Grimsby Exports—15, 31, 75, 91, 105	105	
Notes for Chemical Students, <i>P. T. Austen</i>	145	Correspondence—		December	81	123, 139, 155, 171, 187, 203, 215, 231, 247	247	
Quantitative Estimation of Sugars, <i>E. Wein</i>	66	Borax as a Preservative, <i>A. Robottom</i>	7	January	131	247, 263, 279, 295, 311, 327, 343, 359	359	
Reichs-Chemiker-Kalendar, 1897, <i>K. Hoffmann</i>	145	Cost of Safe and Unsafe Oil, <i>J. K. Hill</i>	161	February	208	375, 391, 407, 423, 439	439	
Select Methods in Inorganic Quantitative Analysis, <i>B. W. Cheevers</i>	65	Flash Point of Burning Oils, <i>J. K. Hill</i>	99	March	267	Grimsby Imports—13, 28, 73, 88, 104, 120	120	
Tables for Gas Analysis, <i>G. Lunge</i>	145	Heat Resisting Glass Cement, <i>G. G. G.</i>	130	April	247	136, 152, 168, 184, 200, 212, 228, 244	244	
Books, Catalogue of	9	Safe and Unsafe Oils, <i>Pro Bono Publico</i>	146	May	411	260, 276, 292, 308, 324, 340, 356, 372	372	
Boric Acid Question	97	Secret Commissions, <i>K. B. Murray</i>	130	Exports of Petroleum from U.S.A.—62, 162, 193, 303, 400, 426		389, 405, 421, 436	436	
Bordeaux, Copper Sulphate at ..	416	Storage of Calcium Carbide ..	330			Guano, A Fortune from	107	
Brine Pumping Compensation ..	210	<i>Domier & Co.</i>	130	F				
Brine, Scalded in	358	<i>J. A. Lane</i>	130	Fabrics, Ornamenting Proofed ..	301	Hardman v. Hardman	371	
British Aluminium Co., Ltd. ..	266	<i>K. B. Murray</i>	130	Factory Inspection in Bavaria ..	23	Hardman, Will of the Late Josiah ..	371	
British Association	38	Sulphate of Ammonia, <i>F. J. R. Carulla</i>	130	Falls of Foyers	379	Hargreaves-Bird Process	27	
Iron and Steel Trades	250	Tar Distillers' Association, <i>A. Forrest</i>	335	Failure of the Eight Hours Day ..	100	Hat Vener Case	37	
Oil and Guano Co., Ltd.	395	United Alkali Co.—Directors' Qualifications, <i>F. J. R. Carulla</i>	223	Faraday and Darwin, Letters of ..	21	Hawkers as Experts	217	
Brooke, Simpson, and Spiller, Ltd. ..	221	Correspondents, Answers to—223, 337, 350, 365, 384, 396	330	Farms, Sale of Cheshire	223	Hermand Oil Co., Ltd.	23	
Brotherton, Messrs., and their Employees	431	Corrosive Fluids, Valves for ..	45	Fatal Explosions	368, 381	Holiday Guide, The N. E. Railway ..	24	
Broxburn Oil Co., Ltd.	304, 334	Cost of Fuel, Calculating	33	Fall of a Chimney	84	Holland, Oil in	140	
Brunner Mond's Dividend	139, 351, 366	Crisis in the Oil Trade	196	Petroleum Accident	24	How it is Done	151	
Burnley Sewage Scheme	267	Crops and Chemical Vapours ..	116	Fertilizer, etc., Analysis	224	Hull Exports—15, 31, 75, 91, 105, 125	125	
Butter from Finland	8	Crossfield's Employees	195	for Lawns	304	139, 155, 171, 187, 203, 215, 231, 247	247	
		Current Topics	77	Fertilizers, Railway Rates for ..	95	243, 259, 275, 291, 307, 323, 339	339	
C		Cyanide Liquors, Gold from ..	234	Sampling	428	243, 259, 275, 291, 307, 323, 339	339	
Calcium Carbide	223, 234	Process, The Keith	315	Field, J. C. and J., Ltd.	397	355, 371, 387, 403, 419, 435	435	
Calcium Carbide Goes Under	173	Patents, The	362, 400	Filter, The Keystone	397	Paint, Oil, and Colour Report ..	25, 70, 85, 100, 115, 130, 145, 160, 175, 190, 205, 220, 235, 250, 265, 280, 295, 310, 325, 340, 355, 370, 385, 400, 415, 430	430
Calcium Carbide, Storage of, etc. 109, 131, 158, 176, 195, 234		D		Finland, Butter from	8	Hygiene of the Chemical Trade ..	70	
Calcium Chloride Disposal	195	Dangerous Trades	98, 132	Fire at an Alkali Works	382			
Canadian Minerals	224	Dangers of Water Gas	253	at a Chemical Works	384, 416	I		
Case, Motor, Notes	24, 91	X-Rays	288	in a Cold Store	349	Ice Plant, A Compact	206	
Carbon Monoxide, It was	351	Dee, Pollution of the	266	at Glasgow, Destructive ..	301	Eliminating Power of Oils	206	
Carbon Monoxide Test	362	Derry Gas Works, Strike at ..	272	at Newport	115	Imports for:—		
Carbons, Electrolytic	221	Development of Widnes	234	Flintshire, Lead Mining in ..	160	December	81	
Carborundum in Germany	352	Developments in the Manufacture of		Food Adulteration	420	January	131	
Carborundum, Production and Use ..	113	Cyanides	64	and Drugs Act Amendment ..	97, 384	February	208	
Carriage of Acids	96	Diamonds, Artificial	8	Foreign Chemical Trade Notes ..	380	March	267	
Castner, Kellner, & Co., Ltd. ..	233, 238	Disposal of CaCl ₂	195	Fortune from Guano	397	April	247	
Castor Oil, Position of	145	Distilling Plant Resin	61	Fochow Petroleum Trade	381	May	411	
Castor Oil, Scarcity of	191	Dividends—8, 144, 160, 192, 221, 239, 266, 319, 351, 388	287	Foyers, The Falls of	379	Improved Acid Cooler	40	
Celluloid, Non-inflammable	44	Dividends, German Chemical—239, 287, 331	331	France and American Oils ..	237	Improved Storage Tanks	40	
Cement Trade Amalgamation	32	Dollar, the Almighty	313	Artificial Wines in	379	India Mica Mines	126	
The	396	Dowson Fuel Gas, Some Uses of ..	39	Fraud, Detecting, by X Rays ..	317	India, Paper Factories in	126	
Centrifugal Pump, An Improved ..	110	Dry-salt Sales in 1897	22	French Academy of Sciences and	8	Indian Indigo Crop	24	
Cerberus would not take the Sop ..	362	Dues on Salt and Lead at Liverpool ..	115	Lord Kelvin	8	Indigo Crop, The Indian	24	
"Champion" Stone Breaker	39	Duplex Power-driven Pump	45	Fuel Cost Calculator	333	Indigo Sales, The London	126	
Change of Address	224, 240	Duty, the American on Bleach ..	410	Fuerst Bros., Messrs.	399	Industrial Application of Electricity ..	11	
Chemical Books, Catalogue of	9	on Nitragin	432	Furness Mines Flooded	40	Industrial Reviews, 1896	11	
Club, The Manchester	114	Dyes, New	8	Future, Present, and Past, The ..	1	Industry for Winsford, New	101	
Club Soiree	180	Dyestuffs and the U.S.A. Tariff ..	381	G		Inquiry, The Snaefell	106, 405	
Industry, German	274	Dynamite, Explosion of	21	Gas Commissioners, Edinburgh ..	24	Insects, Agricultural	18	
" " in Ionian Isles	368	Manufacture of	412, 420	Furnaces and Appliances	63	Institute of Invention	18	
" " Java	368	E		Light and Coke Co., Ltd. (2) ..	132	of Chemical Examiners	18	
" " Russia 141, 332, 364		East India, Salt for	196	Liquor, Liquid Ammonia from ..	272	Inventor Killed	106	
Windfall for	17	Edinburgh Gas Commissioners ..	24	Works, Strike at Derry	272	Inventors' Institutes	106	
Chemical Plant and Laboratory Hints ..	58	Effluent in Sewers	233	Suffocated by	129	Investors and Patents	106	
Chemical Section, Manchester Chamber of Commerce	112	Eight Hours' Day, Failure of ..	100	and Water Gas	297	Ionian Isles, Chemical Industry in ..	106	
Chemical Society, The Andersonian ..	250	Electric Lamp Exhausting	303	Gates' Crusher, The	288	Island Soap Works	106	
Chemical Trade, Foreign	380	Railway for Paris	300	Gazette Notices—70, 118, 134, 156, 198	198	Iron and Steel Institute	106	
Hygiene of	159	Electricity, Industrial Application of ..	348	306, 337, 353, 370, 418, 433	433	Trade, British	106	
of New York in 1896	143	Electro-Chemical Co., Ltd.	267	Industry	224	Ironworks in China	106	
of Niagara	143	and Metallurgical	302	Regulations for Chromate ..	162	Ireland, Pollution of	106	
Spurt in the	116	Industries	302	Works	162	Italian Exhibition in 1893	106	
Vapours and Crops	116	Electro-Cyanide Process, The Keith ..	315	German S. W. A. Tariff	144	Italy, Tinplates in	106	
Chemicals and the U.S.A. Tariff ..	141	Electrolytic Carbons	221	Warships, Liquid Fuel	24			
Chemische Fab., Rhenania	362	Elliot-Cresson Medal	148	The Oil Monopoly in	180	J		
Chemistry Teaching	128	Emission of Black Smoke	81	Technical Education in	97	Japanese Iron Foundry	114	
Cheshire Alkali Works	207, 240	Employers' Liability	189, 384	Gerard Bros., Ltd.	288	Java, Chemical Industry in	114	
Farms, Sale of	223	Energy Wasted	285	Glasgow Exports—15, 31, 75, 91, 105, 125	125	Java, Petroleum in	114	
Chili, Iron Foundry Wanted	330	Engine and Boiler Tinting	282	139, 155, 171, 187, 203, 215, 231, 247	247	Joint Committee, Mersey and Irwell ..	114	
China, Iron Works in	306	Fire Motor	24	263, 279, 295, 311, 327, 343, 359, 375	375	Joint Committee, Ribbles	114	
Salt in	306	Engineering Industry, Profit Sharing ..	237	391, 407, 423, 439	439	Jottings, Parliamentary	114	
Chlorine Generator, A.	142	In	237	Glasgow Imports—13, 28, 73, 88, 104	104	Jubilee Honours	431	
Chromate Works, German Regula-				120, 136, 152, 168, 184, 200, 212, 228, 244	244	Julius Hulsen and Co.	431	
tions for	162			244, 260, 276, 292, 308, 324, 340, 356	356			
Cirencester Royal Agricultural Coll. ..	23			372, 388, 404, 420, 436	436			
Clayton Black Smoke Case	92							

DULTON & CO.,LAMBETH,
LONDON, S.E.FACTURERS OF
NEWARE
CHEMICAL
APPARATUS
OF
DESCRIPTION.DE LISTS
PLICATION.**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.ROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Canville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.**LUMINO-FERRIC.****ATER SPENCE & SONS,**
Manchester Alum Works, MANCHESTER.**VALUATIONS.**Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
and other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No 4413.

Telegraph: "FRASER, ENGINEER, LONDON."

MEN'S HEALTH PROTECTING & SAFETY APPLIANCES. (Regd.)
RATOR OR LUNG PRESERVER.To Protect the LUNGS and THROAT from
Dust, Poisonous Gases and other ImpuritiesAdapted for use in White Lead Works, Paint
and Colour Works, Chemical and Pulverising
Works, Tobacco and Snuff Factories, Iron
Works, Smelting and Refining Works, Paper
Mills, &c., &c.Air is inhaled through a moist sponge and
given out through an automatic valve.Price 6/- each, Carriage Paid, or in quantities
of not less than One dozen, 60/- net.**IMPROVED SAFETY SPECTACLES.**The most complete
invention of its
kind. Specially
recommended for
use in the Chemical
Industries.Afford protection
on all sides, with-
out hindering the
sight.Price per doz., carriage
paid, from 24/- net.Full information on
application.**TAVE ZIMMER, 82, Mark Lane, London, E.C.****Tender.****MIDDLETON CORPORATION.****THE** Corporation of Middleton are
prepared to receive TENDERS for the VITRIOL
required at the Gas Works during the ensuing year,
delivered at the Gas Works, Middleton, free of carriage.Tenders, addressed to the Chairman of the Gas Com-
mittee, to be delivered at my office on or before Wednes-
day, the 17th instant endorsed "Tender for Vitriol."
Further particulars may be obtained from Mr. Luxbury,
Gas Manager.The Corporation do not bind themselves to accept the
lowest or any Tender.Town Hall,
Middleton, nr. Manchester,
1st February, 1897.FREDERICK ENTWISTLE,
Town Clerk.**Miscellaneous.**Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.**TRADE with GERMANY.**—Gentle-
man, with good connection, wishes to Represent
Manufacturers of Specialities in Germany; best of reference
—E. Jasmin, Frankfort-on-Maine, Germany. Established
1882.**A FIRST-CLASS TECHNICAL**
CHEMIST, well acquainted with the Manufacture
of all the Raw Materials and Intermediate Products for
Aniline and Tar Colours, wishes to correspond with a
good firm willing to take up this business; or Adver-
tiser would accept a Situation as Head Chemist.—Apply,
"A 333," Chemical Trade Journal Office, Manchester.**A CHEMIST, Ph.D.**, being able to
work independently, seeks Employment. Several
years' experience in Analytical and Organic Chemistry.
Has done also Research work. Moderate terms. Excellent
references and testimonials.—Address, Dr. L., care of Mr.
Johnson, 50, Lillie Road, London, S.W.**ANALYTICAL CHEMIST**, well
acquainted with the Manufacture of Bleach and
Alkali, is open for Engagement as Chemist to such Works.
Accurate and reliable Analyst.—Address "Bleach," care
of Chemical Trade Journal Office, Manchester.**AGENT WANTED for Manchester**
and District, to represent two Patented Articles by
a Glasgow firm, in great demand by Chemical Manure
Manufacturers, Seed, Grain, and Potato Merchants, Oil,
and Colourmen, Druggists, etc. Good commission.—
Apply to "Agent," Chemical Trade Journal Office, Man-
chester.**CHEMIST (Ph.D.)**, with many years'
experience in Works and Laboratory, is open for
Engagement.—Address "T.Z." Chemical Trade Journal
Office, Manchester.**CHEMIST, Dipl.**, open for Engage-
ment. Nine years' practical experience in large
English Alkali Works; has had charge of men and
machinery; well up in the manufacture of Sulphuric
Acid, Caustic, Bleach, Chlorate, Bichromates, Manganate
of Soda, Strontia Compounds, Copper Sulphate, etc., and
in large scale Electro-chemical work.—Apply, "Alkali,"
Chemical Trade Journal Office, Manchester.**CHEMIST (Dipl.)**, open for Engage-
ment, 9 years' practical experience in large English
Alkali Works, also in Manufacturing Bichromates, Man-
ganate of Soda, Strontia Salts, &c.; well up in experi-
mental and large scale Electro-chemical work; competent
in the Investigation and Valuation of Chemical and Electro-
Chemical Processes; speaks several languages.—Address
"Chemist," W. H. Smith & Son, 61, Dale-street, Liverpool.**SOAP BOILER.**—An Assistant
Soap Boiler Wanted in a large Works in the North
of England; excellent opportunity for a capable man.—
Apply, stating experience and salary required to "H.A.T.,"
Chemical Trade Journal Office, Manchester.**WANTED, Situation as Bricklayer**
in Chemical Works. Can erect Sulphuric Acid
Kilns, Bone Furnaces and Phosphorus Furnaces. Towers
Lined and Boilers Set. Retort Building and General
Repairs. Abstainer. Home and Foreign references.—
Address, "Retort," Chemical Trade Journal Office, Man-
chester.

Miscellaneous.—Cont.

WANTED, Situation as General
Clerk, Timekeeper, or Foreman. Many years' experience in the above capacities in Chemical Works. Good testimonials as to character and general qualifications.—Address, George Doyle, 49, Edinburgh Road, Liverpool.

YOUNG MAN, just finished Studies
with Professor Watson, Anderson's College, Glasgow. Desires Situation in Public Works as Assistant Chemist. Knowledge of Practical Metallurgy.—Address, T. Foulis, 35, Abbotsford Place, Glasgow.

ACETATE of Lime and Miscible
Naphtha for Sale.—Apply, James Hughes & Son, Parkend, near L. dney, Glos.

BOILERS, ENGINES, PUMPS,
Cast and Wrought-iron TANKS, VACUUM and STEAM PANS, and every description of Second-hand PLANT and MACHINERY. Catalogues sent free on application.—Henry Roberts & Co., Engineers and Copper Smiths, Bancroft Road, Mile End, London, E.

CORRESPONDENCE INVITED
from Consumers of Epsom Salts and Chloride of Strontium, by E. Groschke, Billiter Buildings, London, E.C.

FLUX SKIMMINGS (Galvanizer's),
in quantity, Midland district preferred. State quantity and lowest price. Would contract for one or two years' supply.—Reply to Mr. Taylor, Poste Restante, Widnes.

FOR SALE, Cheap.—One Cast Iron
Tank, 65 ft. dia. by 16 ft. deep; capacity, 331,800 gallons.—For particulars and price apply to Samuel White and Sons, 60, Queen Victoria-street, London, E.C.

FOR SALE.—9 Egg-ended Cylindri-
cal Boiler Tanks—18 to 35 ft. x 5; Circular Tank—20 ft. x 17 ft.; all in splendid condition.—Apply, Thomas W. Ward, Sheffield.

FOR SALE.—The Illustrated Journal
of Patents for 1895-6; 15s. per year.—Address in queries to "P.J." Chemical Trade Journal Office, Manchester.

IRON OXIDE (Precipitated), about
1,200 tons per annum, for Sale, readily soluble in Acids. Average Analysis, 80.83 per cent. Ferric Oxide and 19.10 per cent. Ferrous Oxide. Offers wanted.—Address, "Oxide," Chemical Trade Journal Office, Manchester.

SOCIETY OF CHEMICAL IN-
DUSTRY.—Advertiser has Back Numbers for Sale from 1889 to 1895. What offers?—Address "L.V.," care of Chemical Trade Journal Office, Manchester.

GAS TAR and AMMONIACAL
LIQUOR Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE
(N.O.V. & R.O.V.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

SALT or CHEMICALS—To be Let
on long Lease, an Eligible SITE for SALT or CHEMICAL WORKS, in the Cheshire Salt District, with magnificent supply of natural Brine of highest strength.—Address in first instance, Davis Bros., 37, Blackfriars-street, Manchester.

WOODEN VESSELS of every
description, New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

TO BE SOLD, the LANCASHIRE
MANURE COMPANY'S WORKS at Widnes with Machinery and 24,480 square yards of Freehold Land. Address J. Hosking, 15, Fenwick Street Liverpool.

PLATINUM Utensils, Scrap, Lamp
Ends, etc. Best Prices given by Derby and Co., 21, Clinkerwell Road, London, E.C. N.E.—Platinum

MANGANESE ORES up to
95 % Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbonate).
Chrome Ores, Fluorspar, Feldspar, Limespar, Quartz, Silica, and all kindred minerals, purity guaranteed, supplied by
JULIAN PANNENBERG, ARNSTADT, THURINGIA

Samples and Analyses on Application.

BLAYDON MANURE AND ALKALI COMP'S
PURE WHITE SULPHATE OF ALUMINA
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP'S
HYPO-SULPHITE OF SODA,
WALTHER FELD & CO'S
PURE PRECIP. CARBONATE OF BARYTES 90

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE

ALL SIZES
OF CARBOYS
KEPT



ACTUAL MAKER OF

CHEMICAL & ASSAY BALANCES
and WEIGHTS,

From £1. 5s. to £15. Portable Balance. £5. **REPAIRS.**
Four years with Oertling.

C. T. PATRIDGE, 1, New Charles St., City Rd London, E.C.

TUBES

IRON and STEEL (butt or lap welded),
and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter.
COILS for heating, super-heating, distilling and refrigerating purposes, to 300 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

ALBUMENS, Pastes, Arabic Sol
Vegetable and Animal Size,
GLUES, PREPARED PITHS, P
tated Bone Phosphate, Neatsfo
Greases, Manure Materials,

W. KING, Benson St., LIVERPOOL

Manlove, Alliott & Co.
ENGINEERS,
NOTTINGHAM

See Advertisement in first issue of this month.

PURE WATER SUPPLIES For Chemical and Manufacturing Purposes.
THE THOMAS MATTHEWS' PATENT DEEPWELL & BORE
Increases ordinary Water Supplies Threefold.
See Advertisement 3rd page cover every and week.
Imperial Pump Works, West Gorton, Manchester.

BRYAN CORCORAN,
MILLSTONE BUILDINGS,
WIRE WEAVING MACHINE MAKERS
AND GENERAL MILL FURNISHERS
Sole Makers of **MILBURN**
Patent Conoidal Stone Grinders.
Especially suitable for grinding
materials, Wet or Dry.
Works and Warehouses
Back Church Lane. Parcel Dept.: Basement
Corn Exchange
31, MARK LANE, LONDON

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS

Liverpool: Exchange Chambers.
Glasgow: West Campbell-st.

DULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
STONEWARE
CHEMICAL
APPARATUS
OF
DESCRIPTION.IMPROVED
STONEWARE
ACID PUMPS.Each Pump prior to
leaving the Factory
is put into actual
work and tested.PRICE LISTS
APPLICATION.WORKROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.**LUMINO-FERRIC.****METER SPENCE & SONS,**
Manchester Alum Works, MANCHESTER.**VALUATIONS.**Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
and other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No. 4413.

Telegraph: "FRASER, ENGINEER, LONDON."

MANGANESE ORES up to Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbonate),
some Ores, Fluorspar, Feldspar, Limespar, Quartz,
Silica, and all kindred minerals, purity guaranteed, supplied by**JOHAN PANNENBERG, ARNSTADT, THÜR.**

Samples and Analyses on Application.

JAMES:
ST. Helens.TELEPHONE:
No. 20, St. Helens.**CHEMICAL PLANT.****W. NEILL & SON.**

SPECIALITIES:

Low Speed. GRINDING MILLS. For all purposes. FILTER PRESSES. Castings. Burner Fronts, etc. of every description, with Improved Valves. Vertical and Horizontal. PUMPS. AIR COMPRESSORS.

GLYCERINE PLANTS.

St. Helens Juno., Lancs.

SOAP MACHINERY.Tanks
and
Wrot, Ironwork**Tender.**

MIDDLETON CORPORATION.

THE Middleton Corporation are pre-
pared to receive TENDERS for the supply of the
DISINFECTING POWDER required during the year
ending 25th March, 1898.Further particulars and Form of Tender may be obtained
from Mr. C. H. Norton, Nuisance Inspector.The Corporation do not bind themselves to accept the
lowest or any Tender. Tenders endorsed "Disinfectants,"
and addressed to the Chairman of the Watch Committee,
must be delivered at my office on or before Saturday, the
6th March, 1897.Town Clerk's Office,
Middleton, 26th Feb., 1897.FREDERICK ENTWISTLE,
Town Clerk.**Miscellaneous.**Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.TRADE with GERMANY.—Gentle-
man, with good connection, wishes to Represent
Manufacturers of Specialties in Germany; best of reference
—E. Jasmin, Frankfurt-on-Maine, Germany. Established
1882.ADVERTISER requires a Situation,
experienced in the Analysis and Manufacture of
Acids, Alkalies, Foods, and Drugs, Artificial Manures,
etc., etc. Moderate remuneration.—Apply "Drugs,"
Chemical Trade Journal Office, Manchester.CHEMIST (Ph.D.), with many years
experience in Works and Laboratory, is open for
Engagement.—Address "T.Z." Chemical Trade Journal
Office, Manchester.CHEMIST (Ph.D.), from Polytech-
nical High School, Berlin, and having been engaged
in Technical Industry, requires Engagement, Scientific or
Technical.—Apply "S. T. P." Chemical Trade Journal
Office, Manchester.CHEMIST, Dipl., open for Engage-
ment. Nine years' practical experience in large
English Alkali Works; has had charge of men and
machinery; well up in the manufacture of Sulphuric
Acid, Caustic, Bleach, Chlorate, Bichromates, Manganate
of Soda, Strontia Compounds, Copper Sulphate, etc., and
in large scale Electro-chemical work.—Apply, "Alkali,"
Chemical Trade Journal Office, Manchester.CHEMIST or Sub-Manager is open
for engagement. Some years' experience in Manu-
facture of Acids, Alkali, Bleach, Soaps, &c. Excellen-
testimonials.—Address, "Research," c/o Chemical Trade
Journal Office, Manchester.SULPHUR.—Working Foreman
Wanted, who has had experience in extracting
Sulphur from Ore for the Manufacture of Brimstone
and Flowers.—Reply, stating age, wages, and experience, to
"Sulphur," care of Deacon's Advertising Offices, Leaden-
hall-street, London.MESSRS. S. GRANT, Ltd., Mort-
gage Brokers, Broad-street Avenue, London, E.C.,
are prepared to negotiate First Mortgage Debentures for
English Industrial Limited Liability Companies.BOILERS, ENGINES, PUMPS,
Cast and Wrought-iron TANKS, VACUUM and
STEAM PANS, and every description of Second-hand
PLANT and MACHINERY. Catalogues sent free on
application.—Henry Roberts & Co., Engineers and Copper-
smiths, Bancroft Road, Mile End, London, E.CORRESPONDENCE INVITED
from Consumers of Epsom Salts and Chloride of
Strontium, by E. Groschke, Billiter Buildings, London,
E.C.FOR SALE.—9 Egg-ended Cylindri-
cal Boiler Tanks—18 to 35 ft. by 5 ft.; Circular Tank—
10 ft. by 17 ft.; also 4 Boiler Tanks—30 ft. by 7 ft., 25 ft. by
8 ft., etc.; all in splendid condition.—Apply, Thomas W
Ward, Sheffield.

Miscellaneous.—Cont.

FOR SALE—The Illustrated Journal of Patents for 1895-6; 15s. per year.—Address inquires to "P.J." *Chemical Trade Journal* Office, Manchester.

TANK TRUCKS, for the carriage of Oil of Vitriol, Wanted. To Hire, or on the Hire-purchase system. Wanted, by middle of June next.—Address, with full particulars of construction, age, previous uses, and terms to "Vitriol," *Chemical Trade Journal* Office, Manchester.

WANTED, Still for the Distillation of Sulphur. State price and full particulars to "Sulphur," *Chemical Trade Journal* Office, Manchester.

GAS TAR and AMMONIACAL LIQUOR Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE (S.O.V. & R.O.V.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

WOODEN VESSELS of every description, New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,400 square yards of Freehold Land. Address J. Hosking, 16, Fenwick Street Liverpool.

PLATINUM Utensils, Scrap, Lamp Ends, etc. Best Prices given by Derby and Co. 44, Clerkenwell Road, London, E.C. N.B.—Platinum Sold

"UP-TO-DATE" RECIPES, NEW INVENTIONS AND SPECIALITIES in Oils, Greases, Soaps, Paints, Varnishes, Enamels, Blackings, Blues, Polishes, etc., etc., practical working recipes with latest improved English, Continental and American methods, Prize and Gold Medal brands, Cheapened Substitutes, Utilization of Wastes and Refuse, etc.; any samples matched. Write for Lists.—Lewis Jameson & Co. Balmoral-buildings, 91, Queen Victoria-street, London, E.C., and at 47, College-street, Islington, London, N.

DISINTEGRATORS.—A New Machine for £12., second to none, with 18 inch grinding chamber. Also Mortar Mill, 5ft. 6in. pan; for £28. A 10 x 6 New Stone Breaker, for £28.; larger sizes in proportion, or can be had on hire, with option to purchase.—Mason Bros., late S. Mason and Co., Stone Breaking and Grinding Machine Makers, Brandon-street, Leicester.

AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield

Advertisements which arrive too late for insertion on this page will be found on first page of Matter (opposite Leading Article).

UNGER & CO.,
FUERTH (Bavaria),

Supply at Lowest Prices

BRONZE-TINCTURE,
Particularly for Manufacturing of Fluid Bronzes.

BRONZE POWDER,
In all Colours and Casts.

FLUID BRONZES,
In all Colours.

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINUM
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,
WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 96

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE

ALL SIZES
OF CARBOYS
KEPT

& KINDS
& HAMPERS
IN STOCK.



ALBUMENS, Pastes, Arabic Solution, Vegetable and Animal Size, Gums, **GLUES**, PREPARED PITHS, Precipitated Bone Phosphate, Neatsfoot Oil, Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL

ACTUAL MAKER OF
CHEMICAL & ASSAY BALANCES
and WEIGHTS.

From £1. 5s. to £15. Portable Balance, £5. **REPAIRS.**
Four years with Oertling.

O.T. PATRIDGE, 1, New Charles St., City Rd London, E.C.

TUBES

IRON and STEEL (butt or lap welded), and **FITTINGS** for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BINDLEY & SON, L
BLUE, GELATINE, and
Size Manufacture

Works: SMETHWICK, BIRMINGHAM

Northern Office: 224, Effingham Road, St

Manlove, Alliot & Co.
ENGINEERS,
NOTTINGHAM

See Advertisement in first issue of this month.

HARPERS'
LIST.

PAGES 14 & 15

THIS WEEK.

MANGANESE,
Up to 95%
FLUOR SPAR, finest 98/99 per cent white quality.
WILHELM MINNER, Arnstadt, Germany

BRYAN CORCORAN, L
MILLSTONE BUILD

WIRE WEAVER, MACHINE MANUFACTURER
AND GENERAL MILL FURNISH
Sole Maker of **MILBURN'S**
Patent Conoidal Stone Grinding
Especially suitable for cement
materials, Wet or Dry

Works and Warehouse: 1
Back Church Lane. Parcel Dept.: Basement
Corn Exchange

31, MARK LANE, LONDON

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS WIGAN.

WALKERS' PATENT
COMPRESSING ENGINES.
COMPRESSING ENGINES.
150,000 I.H.P. ALREADY AT WORK.

WALKERS' PATENT
AUST AND BLAST FANS.

SPENCE'S ALUM.

ETER SPENCE & SONS,

Manchester Alum Works, MANCHESTER.

R. W. GREEFF & CO.,
EASTCHEAP, LONDON, E.C.
IMPORTERS OF

BEST SULPHATE OF ALUMINA.
BROMIDE OF CHROME (Patented). ANTIMONY SALTS.
TARTAR EMETIC. HYPOSULPHITE OF SODA.
SUGAR OF LEAD, WHITE AND BROWN.
OXIDE, OXALIC, ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

ITIES:-

58% Phosphoric Acid	Castor Oil	Amidol, Metol, Glycin,
S Acetates	Olive Oil	Thiocarbamid and other
E Oxalic Acid	Essent. Oils	Photographicals,
Tartaric Acid	Glucose	Lumieres,
ALTS Salicylic Acid	Grape Sugar	Dry Plates,
Carbolic Acid	Cane Syrup	&c., &c.
ALS Camphor	Treacle	
PER Stearins	Nitrate of Silver	
YES Glycerine	(Pure)	
S OLEINE		

IMPORTERS—Commission Merchants—EXPORTERS.
FUERST BROS.
LONDON: 17, Philpot Lane, E.C.
HEADQUARTERS
FOR ALL
HEAVY OR FINE
CHEMICALS,
Pharmaceutical Products,
Photographic Developers,
Drysalteries and Drugs,
Also OILS and PRODUCE.
SAMPLES AND PRICES ON APPLICATION.

Tender.

EXETER GAS LIGHT AND COKE COMPANY.

TENDERS FOR TAR.

THE Directors of the Exeter Gas Light and Coke Company invite TENDERS for their surplus TAR, for one year from Lady Day next.

Delivery on Company's Works filled into purchaser's tanks. Sealed tenders, endorsed "Tender for Tar," will be received by the undersigned on or before Monday, the 22nd day of March next, but the Directors do not bind themselves to accept the highest or any tender.

By Order,

W. A. PADFIELD,

Engineer and Secretary,

Gas Offices: 248, High-street, Exeter,
16th February, 1897.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free.

AN Associate of the Institute of Chemistry desires an Engagement with Analyst or Chemical Works. He has had four years with Consultant Analyst, and four years Works experience. Foods and Agricultural work specialities. Unexceptional references. Address, "H. L., 27, Wellington Square, Sloane Square, London, S.W.

CAUSTIC POTASH.—Gentleman doing large trade with Soap Makers in Yorkshire open for Agency.—Address "Caustic," Chemical Trade Journal Office, Manchester.

CHEMIST or Sub-Manager is open for engagement. Some years' experience in Manufacture of Acids, Alkali, Bleach, Soaps, &c. Excellent testimonials.—Address, "Research," c/o Chemical Trade Journal Office, Manchester.

CHEMIST, with 9 years' experience, well up in Engineering, and used to the Erection and Management of Plant and men, wants Situation in Chemical Works. Fair draughtsman. Good references.—Address, "B. C. R.," Chemical Trade Journal Office, Manchester.

CHEMIST (Ph.D.), with many years' experience in Works and Laboratory, is open for Engagement.—Address "T.Z.," Chemical Trade Journal Office, Manchester.

CHEMIST, Dipl., open for Engagement. Nine years' practical experience in large English Alkali Works; has had charge of men and machinery; well up in the manufacture of Sulphuric Acid, Caustic, Bleach, Chlorate, Bichromates, Manganate of Soda, Strontia Compounds, Copper Sulphate, etc., and in large scale Electro-chemical work.—Apply, "Alkali," Chemical Trade Journal Office, Manchester.

SULPHUR.—Working Foreman Wanted, who has had experience in extracting Sulphur from Ore for the Manufacture of Brimstone and Flowers.—Reply, stating age, wages, and experience, to "Sulphur," care of Deacon's Advertising Offices, Leadenhall-street, London.

TAR WORKS CHEMIST.—Advertiser having had several years' experience as such in Provincial Works dealing with all classes of Gas Residuals, requires similar Appointment, or as Chemist and Sub-Manager. Age 28. Excellent references.—Address, "T. W. C.," Chemical Trade Journal Office, Manchester.

WANTED, immediately, Manager for Carbonising Works; must thoroughly understand all branches.—Apply by letter, stating full particulars, qualifications, etc. to "A.B.C.," Chemical Trade Journal Office, Manchester.

WANTED for Vitriol and Nitric Acid Works, good all-round Working Foreman, able to do Lead Burning and general Repairs to Plant. State in confidence age and wages required to "R. U. G.," Chemical Trade Journal Office, Manchester.

BOILERS, ENGINES, PUMPS, Cast and Wrought-iron TANKS, VACUUM and STEAM PANS, and every description of Second-hand PLANT and MACHINERY. Catalogues sent free on application.—Henry Roberts & Co., Engineers and Copper Smiths, Bancroft Road, Mile End, London, E.

CALCIUM CARBIDE for Sale in Large or Small Quantities.—Apply to E. Jamin, Frankfurt-on-Maine, Germany.

CORRESPONDENCE SOLICITED.

Miscellaneous.—Cont.

FOR SALE.—9 Egg-ended Cylindrical Boiler Tanks—18 to 33 ft. by 5 ft.; Circular Tank—30 ft. by 17 ft.; also 4 Boiler Tanks—30 ft. by 7 ft., 26 ft. by 8 ft., etc.; all in splendid condition.—Apply, Thomas W Ward, Sheffield.

FOR SALE, Cheap, Good Strong Water-Tight Boilers, from 20 ft. by 4 ft. to 30 ft. by 8 ft.; also good Second-hand CAMERON PUMPS.—Geo. Dean, Trentham Road, Longton, Staffs.

FOR SALE—The Illustrated Journal of Patents for 1895-6; 15s. per year.—Address inquiries to "P.J." Chemical Trade Journal Office, Manchester.

HYDRO-EXTRACTOR, with 42 in. Cage, direct steam driven, with Engine attached, by Manlove, Allott and Co.; £40. Two **HYDRO-EXTRACTORS**, with 36-inch Cages, under driven, £18 each; one **HYDRO-EXTRACTOR**, with 42-inch Cage, under driven, £25; one **HYDRO-EXTRACTOR**, with 60-inch Cage, under driven, £40. Five **FILTER PRESSES**, 33 plates in each, 27 inches square; £45 each.—J. W. Martin, 29, Corporation-street, Manchester.

MESSRS. S. GRANT, Ltd., Mortgage Brokers, Broad-street Avenue, London, E.C., are prepared to negotiate First Mortgage Debentures for English Industrial Limited Liability Companies.

TANK TRUCKS, for the carriage of Oil of Vitriol, Wanted. To Hire, or on the Hire-purchase system. Wanted, by middle of June next.—Address, with full particulars of construction, age, previous uses, and terms to "Vitriol," Chemical Trade Journal Office, Manchester.

TO BE SOLD, One Paint Roller Mill, with three rollers and with two pug mills; equal to new (Follows and Bates' make). Can be seen working at Levinsteins, Ltd., Crumpsall Vale Chemical Works, Blackley, near Manchester.

WANTED to Purchase for abroad, MSS. Articles, practical recipes, and Trade secrets of every description in Oils, Colors, Paints, Varnishes, Soaps, Greases, Chemicals, etc., new methods working waste products, and any good articles connected with the allied trades.—Adress, "C. S. J.," Chemical Trade Journal Office, Manchester.

GAS TAR and AMMONIACAL LIQUOR Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE (R.O.V. & B.O.V.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

WOODEN VESSELS of every description, New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,490 square yards of Freehold Land. Address J. Hosking, 16, Fenwick Street Liverpool.

TO be LET or SOLD, Chemical Works, situated between Marple and Romiley, on the Canal side, and until recently occupied by the Marple Chemical Co. Suitable for Manufacturing Glue, Size, Phosphates, Bleaching Liquor, or any secret processes. Good house attached.—Apply, A. E. Walker, 36, Bishop-street, Manchester, S.W.

PLATINUM Utensils, Scrap, Lamp Ends, etc. Best Prices given by Derby and Co. 44, Clerkenwell Road, London, E.C. N.B.—Platinum Sold

"UP-TO-DATE" RECIPES, NEW INVENTIONS AND SPECIALITIES in Oils, Greases, Soaps, Paints, Varnishes, Enamels, Blackings, Blues, Polishes, etc., etc., practical working recipes with latest improved English, Continental and American methods, Prize and Gold Medal brands, Cheapened Substitutes, Utilization of Wastes and Refuse, etc.; any samples matched. Write for Lists.—Lewis Jameson & Co. Ealmoral-buildings, 91, Queen Victoria-street, London, E.C., and at 47, College-street, Islington, London, N.

AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield

MANGANESE ORES up to 95 % Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbonate), **Chrome Ores, Fluorspar, Feldspar, Limespar, Quartz, Silica, and all kindred minerals**, purity guaranteed, supplied by **JULIAN PANNENBERG, ARNSTADT, THÜRINGEN**

Samples and Analyses on Application.

J. STIFF & SONS,
MANUFACTURERS OF
CHEMICAL APPARATUS
IN VITRIFIED STONEWARE.
ACID PANS, ACID PIPES & CONNECTIONS, RECEIVERS, CONDENSING WORMS, RETORTS, COCKS, JARS, BOTTLES & INSULATORS, BATTERY JARS, POROUS CELLS, &c., &c.
LAMBETH, LONDON, S.E.



FULLER'S
BONE STEAMER.

Softens the Bones without extracting any of the Nitrogenous Substance.



Extraction of the Grease within an hour.

ESTIMATES FOR COMPLETE
BONE STEAMING AND GRINDING PLANT.
GRINDING MACHINERY
FOR EVERY DESCRIPTION OF MATERIAL.

W. M. FULLER, Jun.,
88, Great Charles Street, Birmingham

BINDLEY & SON, I
GLUE, GELATINE, and
Size Manufacture

Works: SMETHWICK, BIRMINGHAM
Northern Office: 224, Effingham Road,

Manlove, Allott & Co
ENGINEERS,
NOTTINGHAM

See Advertisement in first issue of this month.

ALBUMENS, Pastes, Arabic So
Vegetable and Animal Size,
GLUES, PREPARED PITHS, P
tated Bone Phosphate, Neatsfat
Greases, Manure Materials,

W. KING, Benson St., LIVER

TUBES
IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanneal white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter.
COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.
JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN,
MILLSTONE BUILDING
WIRE WEAVER, MACHINE MAKING
AND GENERAL MILL FURNISHING
Sole Maker of **MILBURN**
Patent Conoidal Stone Grinders
Especially suitable for
materials, Wet or Dry
Works and Warehouses
Back Church Lane. Parcel Dept.: Basements
Corn Exchange
31, MARK LANE, LONDON



Liverpool: Exchange Chambers, Glasgow: West Campbell-st.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

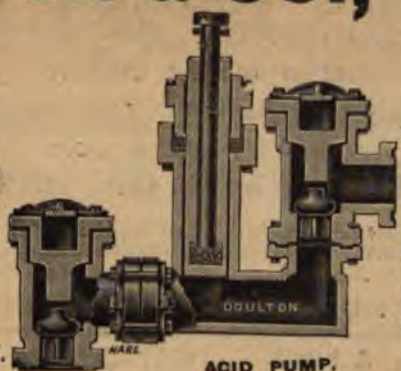
SHERDLEY GLASSWORKS, ST. HELENS

OULTON & CO.,

LAMBETH,
LONDON, S.E.

MANUFACTURERS OF
STONEWARE
CHEMICAL
APPARATUS
OF
EVERY DESCRIPTION.

PRICE LISTS
APPLICATION.



IMPROVED
STONEWARE
ACID PUMPS.

Each Pump prior to
leaving the Factory
is put into actual
work and tested.

SHOWROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.

ALUMINOFERRIC.

PETER SPENCE & SONS,
Manchester Alum Works, MANCHESTER.

VALUATIONS.

Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
and other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No. 4413. Telegraph: "FRASER, ENGINEER, LONDON."

MANGANESE ORES up to

Mn₂O₃ (Oxide), 95 % MnO₂ (Peroxide), and 75 % MnCO₃ (Carbonate),
some Ores, Fluorspar, Feldspar, Limespar, Quartz,
Silica, and all kindred minerals, purity guaranteed, supplied by

LIAN PANNENBERG, ARNSTADT, THÜR.

Samples and Analyses on Application.

ST. HELENS. TELEPHONE: No 20, St. Helens.

CHEMICAL PLANT.

W. NEILL & SON.

SPECIALITIES:

High or
Low
Speed.

WALL ENGINES

For all
purposes.

DRIVING ENGS.

Castings.
Burner
Fronts,
etc.

GRINDING ML.

Vertical
and
Horizontal

BLOWING ENGS.

of every
description, with
Improved
Valves.

PUMPS

AIR COMPRESSORS.

All high efficiency.

GLYCERINE PLANTS.

St. Helens Juno., LANDS.

SOAP MACHINERY.

Metal
Work.

Tanks
and
Wrought Ironwork

Tender.

COUNTY BOROUGH OF BURY.

TO SULPHURIC ACID MAKERS.

THE Gas Committee of the Bury Corporation are prepared to receive TENDERS for the Supply of about 350 tons of SULPHURIC ACID for the Manufacture of Sulphate of Ammonia, for a period of one year from the 1st May, 1897. Form of Tender and conditions may be obtained on application to Mr. W. H. S. Gendall, Engineer and Manager Gas Works, Bury. Sealed Tenders, endorsed "Tender for Acid," to be sent to me, the undersigned, on or before Monday, the 15th April, 1897. Preference will be given to those persons or firms who pay to their workpeople the regular standard rate of wages obtaining at the time in the town or district.

Corporation Office, Bury. JOHN HASLAM, Town Clerk.
April 1st, 1897.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free.

TRADE with GERMANY.—Gentleman, with good connection, wishes to Represent Manufacturers of Specialities in Germany; best of reference—E. Jasmin, Frankfurt-on-Maine, Germany. Established 1882.

A LEAD BURNER required for Chemical Works immediately one who has had experience in working Sulphuric Acid Chambers and Tank-Lining.—Address, "M.B.," Chemical Trade Journal Office, Manchester.

CHEMIST, Dipl., open for Engagement. Nine years' practical experience in large English Alkali Works; has had charge of men and machinery; well up in the manufacture of Sulphuric Acid, Caustic, Bleach, Chlorate, Bichromates, Manganate of Soda, Strontia Compounds, Copper Sulphate, etc., and in large scale Electro-chemical work.—Apply, "Alkali," Chemical Trade Journal Office, Manchester.

DEBENTURE AND PREFERENCE SHARES.

ENGLISH Industrial Limited Liability Companies desirous of placing same, address, "Promptitude," care of Deacon's Advertising Offices, Leadenhall-street, London.

LONDON Foreign Import and Export firm requires established agents in the wholesale Chemical, Drysaltery and Druggist's line, to represent them at fair terms in Midlands, Northern and Western districts.—Address "X Y," Chemical Trade Journal Office, Manchester.

PLUMBER and Chemical Lead Burner wants Situation. Distance no object.—Apply to G. Taylor, 4, Cobden-street, Russell Town, Bristol.

SOAP WORKS MANAGER, shortly disengaged desires similar Situation; thoroughly practical in all branches; latest improvements; good testimonials.—Address, "Savon," Chemical Trade Journal Office, Manchester.

WANTED, a good experienced Man for a Chemical Works in the Midlands, one who understands the management of workmen and the Manufacture of Sulphuric Acid, Sulphate of Ammonia, and Tar Distilling in general. Wages no object to a real good man.—Apply, stating age, wages required, with copies of not less than two testimonials to "G. C. D.," Chemical Trade Journal Office, Manchester.

WANTED, about 20 Pillars, 12ft. by 8in. to 9in. diameter, hollow. Give particulars to "Dublin," Chemical Trade Journal Office, Manchester.

A BARGAIN.—Chemical Plant for SALE, nearly new, with option of Works, at a low rental.—Apply Marshall & Co., 41, Corporation-street, Manchester.

BOILER TANK, 31ft. 6in. long, 6ft. 6in. diameter, ends made up ready for use. Hydro-Extractor, 36in. cage, 6x8, 6x12, with engine for driving same, £22 10s.—J. W. Martin, 29, Corporation-street, Manchester.

Miscellaneous.—Cont.

BOILERS, ENGINES, PUMPS,
Cast and Wrought-iron TANKS, VACUUM and
STEAM PANS and every description of Second-hand
PLANT and MACHINERY. Catalogues sent free on
application.—Henry Roberts & Co., Engineers and Copper
smiths, Bancroft Road, Mile End, London, E.

CALCIUM CARBIDE for Sale in
Large or Small Quantities.—Apply to E. Jasmin,
Frankfort-on-Maine Germany.

CARBONATE of BARYTES, 68 $\frac{9}{10}$
about 100 tons to Dispose of; best offers wanted.—
Apply, A. Keiffenheim, Newcastle-on-Tyne.

CORRESPONDENCE INVITED
from Consumers of Epsom Salts and Chloride of
Strontium, by E. Groschke, Billiter Buildings, London,
E.C.

FOR SALE—The Illustrated Journal
of Patents for 1895-6; 15s. per year.—Address in
quiries to "P.J." Chemical Trade Journal Office, Man-
chester.

MECHANICAL DRYER Wanted
in a Chemical Works. Particulars will be supplied
on application to "Dryer," Chemical Trade Journal
Office Manchester.

ON SALE, Large WORKS near
Accrington, suitable for Oil Tallow, Chemical, or
Soap-Making, on Leeds and Liverpool Canal within one
mile from station. Also two splendid Houses adjoining,
complete with every convenience; coach-house, stables,
&c. Address, "Works," Chemical Trade Journal Office,
Manchester.

PETROLEUM COKE for SALE.—
Apply, Sater & Co., Ltd., Middlesbrough.

SOCIETY OF CHEMICAL IN-
DUSTRY JOURNALS. For Sale, 14 Bound
Volumes, 1882-95, also 1896 unbound. All in good con-
dition.—Address, offers to "Industry," Chemical Trade
Journal Office, Manchester.

GAS TAR and **AMMONIACAL**
LIQUOR Wanted.—Apply, Josiah Hardman,
Milton, Staffs.

SULPHURIC ACID FOR SALE
(80.0 v. & 80.0 v.) Made from Spent Oxide.—I. Hard-
man, Chemical Works, Milton, Staffs. Correspondence
invited.

WOODEN VESSELS of every
description, New or Second-hand; all shapes,
dimensions, and capacities. We have on hand the largest
stock in England, and firms requiring anything in this
direction are kindly invited to write for particulars, etc.,
to Henry Roberts & Co., Vat and Back Makes, Bancroft
Road, London, E.

TO BE SOLD, the **LANCASHIRE**
MANURE COMPANY'S WORKS at Widnes
with Machinery and 24,420 square yards of Freehold Land.
Address J. Hosking, 16, Fenwick Street Liverpool.

TO BE LET or **SOLD**, Chemical
Works, situated between Marple and Romiley, on
the Canal side, and until recently occupied by the Marple
Chemical Co. Suitable for Manufacturing Glue, Size,
Phosphates, Bleaching Liquor, or any secret processes.
Good house attached.—Apply, A. E. Walker, 36, Bishop-
street, Manchester, S.W.

PLATINUM Utensils, Scrap, Lamp
Ends, etc. Best Prices given by Derby and Co.
44, Clerkenwell Road, London, E.C. N.B. Platinum
Sold

"UP-TO-DATE" RECIPES, NEW
INVENTIONS and **SPECIALITIES** in
Oils, Greases, Soaps, Paints, Varnishes, Enamels, Blackings,
Blues, Polishes, etc. etc. practical working recipes with
latest improved English Continental and American
methods. Prize and Gold Medal brands. Cheapened
Substitutes, Utilization of Wastes and Refuse, etc.; any
samples matched. Write for Lists.—Lewis Jameson & Co.
Balmoral buildings, 91, Queen Victoria-street, London,
E.C. and at 47, College-street, Islington, London, N.

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,

WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 96/98%

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

**ALL SIZES
OF CARBOYS
KEPT**

**& KINDS
& HAMPERS
IN STOCK.**



ALBUMENS, Pastes, Arabic Solution,
Vegetable and Animal Size, Gums,
GLUES, PREPARED PITHS, Precipi-
tated Bone Phosphate, Neatsfoot Oil,
Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL

ACTUAL MAKER OF

CHEMICAL & ASSAY BALANCES
and WEIGHTS,

From £1. 5s. to £15. Portable Balance. £5. **REPAIRS.**
Four years with Certifying.
O. T. PATRIDGE, 1, New Charles St., City Rd London, E.C.

TUBES

IRON and STEEL (butt or lap welded),
and **FITTINGS** for Gas, Water, Steam, Liquid
Ammonia, and Hydraulic Work,
galvanized white enamelled inside, or coated by Dr. Angus
Smith's Composition. In stock to 6 in. diameter.
COILS for heating, super-heating, distilling and
refrigerating purposes, to 300 feet long without joints.

JOHN SPENCER,

Globe Tube Works, Wednesbury, and 14, Great St.
Thomas Apostle, Cannon-st., London, E.C.

BINDLEY & SON, Ltd.,

GLUE, GELATINE, and

Size Manufacturers.

Works: SMETHWICK, BIRMINGHAM.

Northern Office: 224, Effingham Road, Sheffield

Manlove, Alliot & Co. Ltd.,

ENGINEERS,

NOTTINGHAM.

See Advertisement in first issue of
this month.

HARPER'S
LIST.

PAGES 14 and 15
THIS WEEK.

MANGANESE,
Up to 95%
FLUOR SPAR, finest 98/99 per cent
white quality.
WILHELM MINNER, Arnstadt Germany.

BRYAN CORCORAN, LTD.

MILLSTONE BUILDER,

WIRE WEAVER, MACHINE MANUFACTURER
AND GENERAL MILL FURNISHER.

Sole Maker of **MILBURN'S**

Patent Conoidal Stone Grinding Mills

Especially suitable for certain

materials, Wet or Dry.

Works and Warehouses:

Back Church Lane. Parcel Dept.: Basement of the

Corn Exchange

31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers,
Glasgow: West Campbell St.

Manchester: Oldham Road,
London: Warehouse Street, E.C.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKERS' PATENT
R COMPRESSING ENGINES.
S COMPRESSING ENGINES.
150,000 I.H.P. ALREADY AT WORK.

WALKERS' PATENT
HAUST AND BLAST FANS.

PENCE'S ALUM.

PETER SPENCE & SONS,
Manchester Alum Works, MANCHESTER.

R. W. GREEFF & CO.,
EASTCHEAP, LONDON, E.C.
IMPORTERS OF

FUERST SULPHATE OF ALUMINA.
ORIDE OF CHROME (Patented). ANTIMONY SALTS.
ARTAR EMETIC. HYPOSULPHITE OF SODA.
SUGAR OF LEAD, WHITE AND BROWN.
OXIDE, OXALIC, ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

ALITIES:-

ASH 58% Phosphoric Acid	Castor Oil	Amidol, Metol, Glycin,
SHES Acetates	Olive Oil	Thiocarbamid and other
CAKE Oxalic Acid	Essent. Oils	Photographicals,
SH Tartaric Acid	Glucose	Lumieres,
SALTS Salicylic Acid	Grape Sugar	Dry Plates,
X Carboic Acid	Cane Syrup	&c., &c.
URIALS Camphor	Treacle	
COPPER Stearine	Nitrate of Silver	(Pure)
SIATES Glycerine		
IDES OLEINE		
RALS		
STONE		
HUR		

IMPORTERS—Commission Merchants—EXPORTERS.
FUERST BROS.
LONDON: 17, Philpot Lane, E.C.
HEADQUARTERS
FOR ALL
HEAVY OR FINE
CHEMICALS,
Pharmaceutical Products,
Photographic Developers,
Drysaltaries and Drugs,
Also OILS and PRODUCE.
SAMPLES AND PRICES ON APPLICATION.

Tender.

COUNTY BOROUGH OF BURY.
TO SULPHURIC ACID MAKERS.

THE Gas Committee of the Bury Corporation are prepared to receive TENDERS for the Supply of about 350 tons of SULPHURIC ACID for the Manufacture of Sulphate of Ammonia, for a period of one year from the 1st May, 1897. Form of Tender and conditions may be obtained on application to Mr. W. H. S. Gendall, Engineer and Manager Gas Works, Bury. Sealed Tenders, endorsed "Tender for Acid," to be sent to me, the undersigned, on or before Monday, the 19th April, 1897. Preference will be given to those persons or firms who pay to their workpeople the regular standard rate of wages obtaining at the time in the town or district.

JOHN HASLAM,
Town Clerk.
Corporation Office, Bury,
April 1st, 1897.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free.

ADVERTISER, with first-class knowledge and experience in Chemical Laboratories and Works, requires an Engagement as Chemist's Manager or Traveller.—Apply, "G. R. W.," Chemical Trade Journal Office, Manchester.

CHEMIST for Cement Works.—Wanted about May 1st. Must be capable of making full Analyses, Tests, and Reports of different materials as required, also take complete control of washing and other tests during manufacture. To give whole time to his duties and live near works.—Apply by letter only, stating age and salary required with view to a permanency, and previous experience, to Chemist, 13, Bury Road, Gravesend

CHEMIST, Dipl., open for Engagement. Nine years' practical experience in large English Alkali Works; has had charge of men and machinery; well up in the manufacture of Sulphuric Acid, Caustic, Bleach, Chlorate, Bichromate, Manganate of Soda, Strontia Compounds, Copper Sulphate, etc., and in large scale electro-chemical work.—Apply, "Alkali," Chemical Trade Journal Office, Manchester.

CHEMIST, with 9 years' experience, well up in Engineering, and used to the Erection and Management of Plant and men, wants Situation in Chemical Works. Fair draughtsman. Good references.—Address "H. C. R.," Chemical Trade Journal Office, Manchester.

DEBENTURE AND PREFERENCE SHARES.

ENGLISH Industrial Limited Liability Companies desirous of placing same, address, "Promptitude," care of Deacon's Advertising Offices, Leadenhall-street, London.

LONDON Foreign Import and Export firm requires established agents in the whole sale Chemical, Dry-salt and Druggist's line, to represent them at fair terms in Midlands, Northern and Western districts.—Address "X Y," Chemical Trade Journal Office, Manchester.

SOAP WORKS MANAGER, shortly disengaged, desires similar Situation; thoroughly practical in all branches; latest improvements; good testimonials.—Address, "Savon," Chemical Trade Journal Office, Manchester.

"THE Scientific Aspects of the Sewage Question," 16 pp., 6d. "We strongly commend its perusal."—The Surveyor. Address, PUBLIC ANALYST, Halifax.

WANTED, a good experienced Man for a Chemical Works in the Midlands, one who understands the management of workmen and the Manufacture of Sulphuric Acid, Sulphate of Ammonia, and Tar Distilling in general. Wages no object to a real good man.—Apply, stating age, wages required with copies of not less than two testimonials to "G. C. D.," Chemical Trade Journal Office, Manchester.

WANTED, Foreman, thoroughly acquainted with the Plant and Manufacture of Sulphate of Copper.—Address, "Sulphate," Chemical Trade Journal Office, Manchester.

A BARGAIN.—Chemical Plant for SALE, nearly new, with option of Works, at a low rental.—Apply Marshall & Co., 41, Corporation-street, Manchester.

CORRESPONDENCE SOLICITED.

Miscellaneous.—Cont.

BOILERS, ENGINES, PUMPS,
Cast and Wrought-iron TANKS, VACUUM and
STEAM PANS, and every description of Second-hand
PLANT and MACHINERY. Catalogues sent free on
application.—Henry Roberts & Co., Engineers and Copper
smiths, Bancroft Road, Mile End, London, E.

CALCIUM CARBIDE for Sale in
Large or Small Quantities.—Apply to E. Jasmin,
Frankfort-on-Maine Germany.

CHEMICAL TRADE JOURNAL.
10 Volumes to be Sold (several out of print). Bound
in green cloth boards, gold lettering. Complete with
advertisements forming a most comprehensive trade cata-
logue. 10/6 per volume or 6/5 the set.—Apply to "Y. R."
care of Chemical Trade Journal Office, Manchester.

FOR SALE—The Illustrated Journal
of Patents for 1895-6; 15s. per year.—Address in-
quiries to "P.J." Chemical Trade Journal Office, Man-
chester.

PETROLEUM COKE for SALE.—
Apply, Saller & Co., Ltd., Middlesbrough.

SPENT OXIDE Wanted, in lots,
about 100 to 200 tons, containing about 50 per cent.
or upwards of Sulphur. Please state lowest price f.o.b.
nearest shipping port.—Address, "W. S. O.," Chemical
Trade Journal Office, Manchester.

WANTED to Purchase for abroad,
MSS. Articles, practical recipes, and Trade
secrets of every description in Oils, Colors, Paints,
Varnishes, Soaps, Greases, Chemicals, etc., new methods
working waste products, and any good articles connected
with the allied trades.—Address, "C. S. J.," Chemical
Trade Journal Office, Manchester.

WOOD NAPHTHA (Crude) for
SALE.—Apply, "Naphtha," Chemical Trade
Journal Office, Manchester.

GAS TAR and AMMONIACAL
LIQUOR Wanted.—Apply, Josiah Hardman,
Milton, Staffs.

SULPHURIC ACID FOR SALE
(S.O.V. & R.O.V.) Made from Spent Oxide.—J. Har-
man, Chemical Works, Milton, Staffs. Correspondence
invited.

WOODEN VESSELS of every
description. New or Second-hand; all shapes,
dimensions, and capacities. We have on hand the largest
stock in England, and firms requiring anything in this
direction are kindly invited to write for particulars, etc.,
to Henry Roberts & Co., Vat and Back Makers, Bancroft
Road, London, E.

TO BE SOLD, the LANCASHIRE
MANURE COMPANY'S WORKS at Widnes
with Machinery and 24,420 square yards of Freehold Land.
Address J. Hosking, 16, Fenwick Street Liverpool.

TO be LET or SOLD, Chemical
Works, situated between Marple and Romiley, on
the Canal side, and until recently occupied by the Marple
Chemical Co. Suitable for Manufacturing Glue, Size,
Phosphates, Bleaching Liquor, or any secret processes.
Good house attached.—Apply, A. E. Walker, 36, Bishop-
street, Manchester, S.W.

PLATINUM Utensils, Scrap, Lamp
Ends, etc. Best Prices given by Derby and Co.
44, Clerkenwell Road, London, E.C. N.B.—Platinum
Sold

"UP-TO-DATE" RECIPES, NEW
INVENTIONS and SPECIALITIES in
Oils, Greases, Soaps, Paints, Varnishes, Enamels, Blackings,
Blues, Polishers, etc., etc., practical working recipes with
latest improved English, Continental and American
methods, Prize and Gold Medal brands, Cheapened
Substitutes, Utilization of Wastes and Refuse, etc.; any
samples matched. Write for Lists.—Lewis Jameson & Co.
Balmoral-buildings, 91, Queen Victoria-street, London,
E.C., and at 47, College-street, Islington, London, N.

AMMONIA, all qualities and
strengths. Enquiries solicited.
BROTHERTON & Co., Birmingham, Leeds, and Wakefield

Advertisements which arrive too late for in-
sertion on this page will be found on first page
of Matter (opposite Leading Article).

MANGANESE ORES up to
95 % Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbon
Chrome Ores, Fluorspar, Feldspar, Limespar, Qua-
Silex, and all kindred minerals, purity guaranteed, supplied by
JULIAN PANNENBERG, ARNSTADT, THÜ

Samples and Analyses on Application.

J. STIFF & SONS,
MANUFACTURERS OF
CHEMICAL APPARATUS
IN VITRIFIED STONEWARE.
ACID PANS, ACID PIPES & CONNECTIONS, RECEIVERS, CONDENSING
WORMS, RETORTS, COCKS, JARS, BOTTLES & INSULATORS,
BATTERY JARS, POROUS CELLS, &c., &c.
LAMBETH, LONDON, S.E.



FULLER'S
BONE STEAMER.

Softens the Bones without
extracting any of the
Nitrogenous Substance.



Extraction of the Grease
within an hour.

ESTIMATES FOR COMPLETE
BONE STEAMING AND GRINDING PLANT.
GRINDING MACHINERY
FOR EVERY DESCRIPTION OF MATERIAL.

W. M. FULLER, Jun.,
88, Great Charles Street, Birmingham

ALBUMENS, Pastes, Arabic Sol
Vegetable and Animal Size,
GLUES, PREPARED PITHS, P
tated Bone Phosphate. Neatsfo
Greases, Manure Materials,

W. KING, Benson St., LIVER

BINDLEY & SON, L
GLUE, GELATINE, and
Size Manufacture

Works: SMETHWICK, BIRMINGHAM
Northern Office: 224, Effingham Road, S

HARPERS'
LIST.

PAGES 14 and 15
LAST WEEK.

TUBES
IRON and STEEL (butt or lap welded),
and **FITTINGS** for Gas, Water, Steam, Liquid
Ammonia, and Hydraulic Work.
galvanised white enamelled inside, or coated by Dr. Angus
Smith's Composition. In stock to 8in. diameter.
COILS for heating, super-heating, distilling and
refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St.
Thomas Apostles, Cannon-st., London, E.C.

BRYAN CORCORAN,
MILLSTONE BUILDING
WIRE WEAVER, MACHINE MANUFACTURER
AND GENERAL MILL FURNISHER
Sole Maker of MILLBURN
Patent Conoidal Stone Grinders
Especially suitable for
materials, Wet or Dry
Works and Warehouses
Back Church Lane. Parcel Dept.: Basements
Corn Exchange
31, MARK LANE, LONDON



Liverpool: Exchange Chambers,
Glasgow: West Campbell-st.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELEN'S

GOULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
STONEWARE
CHEMICAL
APPARATUS
OF
EVERY DESCRIPTION.PRICE LISTS
ON APPLICATION.

ACID PUMP.

IMPROVED
STONEWARE
ACID PUMPS.Each Pump prior to
leaving the Factory
is put into actual
work and tested.SHOWROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.**ALUMINOFERRIC.****PETER SPENCE & SONS,**
Manchester Alum Works, MANCHESTER.**VALUATIONS.**Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
and other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No 4413.

Telegraph: "FRASER, ENGINEER, LONDON."

MANGANESE ORES up to Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbonate),
some Ores, Fluorspar, Feldspar, Limespar, Quartz,
Silica, and all kindred minerals, purity guaranteed, supplied by**L. PANNEBERG, ARNSTADT, THÜR.**

Samples and Analyses on Application.

GRAMS:
"St. Helens."TELEPHONE:
No. 20, St. Helens.**CHEMICAL PLANT.**
W. NEILL & SON.

SPECIALITIES:



GLYCERINE PLANTS.

St. Helens Juno., Lancs.

SOAP MACHINERY.Metal
Work,Tanks
and
Wrought Ironwork**Tender.****SALT SUPPLY.**

THE Directors of DAVIS'S CHLORINE PROCESSES, LTD., invite Tenders for the Supply to their Works at Lostock Gralam, Cheshire, of their requirements—about two hundred tons per week—of best coarse-grained CHEMICAL SALT. Delivery to commence at the end of the year 1897.

Tenders, stating guaranteed limit of moisture and price delivered to the Company's private sidings, at Lostock Gralam, or delivered alongside the wharf of the Company on the North Stafford Canal, should be sent addressed to the Managing Director of Davis's Chlorine Processes, Ltd., Lostock Gralam, near Northwich, on or before May 18th next.

The Directors do not bind themselves to accept the lowest or any Tender.

(Signed) E. GIBSON,
Secretary**Miscellaneous.**

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free.

TRADE with GERMANY.—Gentleman, with good connection, wishes to Represent Manufacturers of Specialities in Germany; best of reference—E. Jasmin, Frankfurt-on-Maine, Germany. Established 1882.**ADVERTISER**, with wide experience in the Analysis and Manufacture of Acids, Alkalies, Foods, Drugs, Artificial Manures, Tar Products, etc., etc., desires Situation as Chemist, Manager, or Superintendent.—Address, "M.C.S.," Chemical Trade Journal Office, Manchester.**ALKALI WORKS Manager** or Chemist desires Re-Engagement. Several years' experience in the Manufacture of Acids, Alkali, Bleach, Bichromes, Superphosphates, etc. Well up in Engineering and Building Construction. Good references.—Address, "Manufacture," Chemical Trade Journal Office, Manchester.**DEBENTURE AND PREFERENCE SHARES.****ENGLISH Industrial Limited Lia** bility Companies desirous of placing same, address, "Promptitude," care of Deacon's Advertising Offices, Leadenhall-street, London.**LABORATORY ASSISTANT.**

Youth, 17, well educated, Science Certificated (1st class), Coll. Precept, &c., steady and trustworthy, with mechanical ability, seeks position in Laboratory, or with a good firm of Apparatus Manufacturers and Laboratory Furnishers; sound references; small salary to start if permanent prospect.—Apply "R.E.," Chemical Trade Journal Office, Manchester.

SOAP WORKS MANAGER is open

for Engagement; thoroughly practical and up-to-date in the Manufacture of Hard, Soft Household, and Fancy Soaps, and in Perfumery. Excellent references and testimonials.—Address, "Perfume," Chemical Trade Journal Office, Manchester.

WANTED at once, Manager for

Chemical Works (responsible for manufacture only); must have good knowledge of Chemical operations generally, more particularly in Tar and Sulphate of Ammonia manufacture; accustomed to erection and repair of Plant, and able to keep Works books. Workmen's hours.—Write, giving age, experience, salary, and references to "C.J.R.," Chemical Trade Journal Office, Manchester.

BOILERS, ENGINES, PUMPS,

Cast and Wrought-iron TANKS, VACUUM and STEAM PANS, and every description of Second-hand PLANT and MACHINERY. Catalogues sent free on application.—Henry Roberts & Co., Engineers and Copper Smiths, Bancroft Road, Mile End, London, E.

CALCIUM CARBIDE for Sale in

Large or Small Quantities.—Apply to E. Jasmin, Frankfurt-on-Maine, Germany.

CORRESPONDENCE INVITED

from Consumers of Epsom Salts and Chloride of Strontium, by E. Groschke, Billiter Buildings, London, E.C.

Miscellaneous.—Cont.

CHEMIST (Diplomas), with 8 years' experience in England and Germany, with capital at disposal, and a connection, desires to join a firm of Chemical Manufacturers in the Midlands.—Apply "Nitro," Chemical Trade Journal Office, Manchester.

CHEMICAL TRADE JOURNAL.
10 Volumes to be Sold (several out of print). Bound in green cloth boards, gold lettering. Complete with advertisements, forming a most comprehensive trade catalogue. 10/6 per volume or £5 the set.—Apply to "Y. R." care of Chemical Trade Journal Office, Manchester.

FOR SALE—The Illustrated Journal of Patents for 1895-6; 15s. per year.—Address inquiries to "P. J." Chemical Trade Journal Office, Manchester.

PETROLEUM COKE for SALE.—Apply, Sadler & Co., Ltd., Middlesbrough.

RAILWAY TANKS for Hire.—Brotherton & Co., Ammonia Distillers, Leeds.

SOAPS, Glycerine, Fats.—Soap-works Chemist is open for Engagement. Large experience. Oil, Bleaching, and Refining a speciality. Moderate salary.—Address "B," Chemical Trade Journal Office, Manchester.

WANTED, good Second-hand PYRITES BREAKER.—Price and particulars to "Pyrites," Chemical Trade Journal Office, Manchester.

TO CHEMICAL WORKS and Others.—For SALE, large number of Wrought and Cast Iron TANKS up to 17 feet diameter, all lengths. Enquiries solicited.—Apply, Thos. W. Ward, Fitzalan Chambers, Sheffield.

WANTED to Purchase for abroad, MSS. Articles, practical recipes, and Trade secrets of every description in Oils, Colors, Paints, Varnishes, Soaps, Greases, Chemicals, etc., new methods working waste products, and any good articles connected with the allied trades.—Address, "C. S. J.," Chemical Trade Journal Office, Manchester.

GAS TAR and **AMMONIACAL LIQUOR** Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE (N.O.V. & R.O.V.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

WOODEN VESSELS of every description, New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,480 square yards of Freehold Land. Address J. Hosking, 16, Fenwick Street Liverpool.

TO be LET or SOLD, Chemical Works, situated between Marple and Romiley, on the Canal side, and until recently occupied by the Marple Chemical Co. Suitable for Manufacturing Glue, Size, Phosphates, Bleaching Liquor, or any secret processes. Good house attached.—Apply, A. E. Walker, 36, Bishopstree, Manchester, S.W.

PLATINUM Utensils, Scrap, Lamp Rods, etc. Best Prices given by Derby and Co. 44, Clerkenwell Road, London, E.C. N.B.—Platinum Sold!

"UP-TO-DATE" RECIPES, NEW INVENTIONS AND SPECIALITIES in Oils, Greases, Soaps, Paints, Varnishes, Enamels, Blackings, Blazes, Polishes, etc., etc., practical working recipes with latest improved English, Continental and American methods, Prize and Gold Medal brands, Cheapened Substitutes, Utilization of Wastes and Refuse, etc.; any samples matched. Write for Lists.—Lewis Jameson & Co. Balmoral-buildings, 91, Queen Victoria-street, London, E.C., and at 47, College-street, Islington, London, N.

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINA
BLANC FIXE, CHLORIDE, NITRATE
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,

WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 90

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-T

ALL SIZES OF CARBOYS KEPT & **KINDS & HAMPERS IN STOCK.**



ALBUMENS, Pastes, Arabic Solution, Vegetable and Animal Size, Gums, GLUES, PREPARED PITHS, Precipitated Bone Phosphate, Neatsfoot Oil, Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL.

ACTUAL MAKER OF

CHEMICAL & ASSAY BALANCES and WEIGHTS,

From £1. 5s. to £15. Portable Balance, £5. **REPAIRS.** Four years with Oertling.

O. T. PASTRIDGE, 1, New Charles St., City Rd. London, E. C.

TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter. **COILS** for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

Manlove, Allott & Co.
ENGINEERS,
NOTTINGHAM

See Advertisement in first issue this month.

BINDLEY & SON, L
GLUE, GELATINE, and
Size Manufacture

Works: SMETHWICK, BIRMINGHAM

Northern Office: 224, Effingham Road, S

HARPERS' LIST.

PAGES 14 and 15
THIS WEEK.



MANGANESE,
Up to 95%.

FLUOR SPAR, finest 98/99 per cent white quality.

WILHELM MINNER, Arnstadt, Germany

BRYAN CORCORAN, MILLSTONE BUILDING



WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHING.
Sole Maker of **MILBURN** Patent Conoidal Stone Grinding
Especially suitable for use on materials, Wet or Dry
Works and Warehouses:
Buck Church Lane. Parcel Dept.: Basement
Corn Exchange

31, MARK LANE, LONDON

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers, Glasgow: West Campbell-st.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKERS' PATENT
R COMPRESSING ENGINES.
S COMPRESSING ENGINES.
150,000 I.H.P. ALREADY AT WORK.

WALKERS' PATENT
HAUST AND BLAST FANS.

PENCE'S ALUM.

PETER SPENCE & SONS,

Manchester Alum Works, MANCHESTER.

R. W. GREEFF & CO.,
EASTCHEAP, LONDON, E.C.
IMPORTERS OF

PUREST SULPHATE OF ALUMINA.
ORIDE OF CHROME (Patented). ANTIMONY SALTS.
ARTAR EMETIC. HYPOSULPHITE OF SODA.
SUGAR OF LEAD, WHITE AND BROWN.
C OXIDE, OXALIC, ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

SPECIALITIES:—

ASH 58% Phosphoric Acid	Castor Oil	Amidol, Metol, Glycin,
ASHES Acetates	Olive Oil	Thiocarbamid and other
CAKE Oxalic Acid	Essent. Oils	Photographicals,
ACH Tartaric Acid	Glucose	Lumieres,
IA SALTS Salicylic Acid	Grape Sugar	Dry Plates,
IA X Carbolio Acid	Cane Syrup	&c., &c.
IA X Treacle	Nitrate of Silver	
IA X Camphor	(Pure)	
IA X Stearine		
IA X Glycerine		
IA X OLEINE		

IMPORTERS—Commission Merchants—EXPORTERS.
FUERST BROS.
LONDON: 17, Philpot Lane, E.C.
HEADQUARTERS
FOR ALL
HEAVY OR FINE
CHEMICALS,
Pharmaceutical Products,
Photographic Developers,
Drysalteries and Drugs,
Also OILS and PRODUCE.
SAMPLES AND PRICES ON APPLICATION.

Tender.

MANCHESTER CORPORATION GAS WORKS.

AMMONIACAL LIQUOR.

THE Gas Committee of the Corporation of Manchester are prepared to receive TENDERS for the PURCHASE and REMOVAL of the AMMONIACAL LIQUOR to be produced at the Gaythorn, Rochdale Road, and Bradford Road Gas Works during a period of one or more years, commencing at noon on the 30th day of June, 1897.

The Committee do not bind themselves to accept the highest or any Tender.

Sealed Tenders, addressed to the Chairman of the Gas Committee, and endorsed "Tender for Ammoniacal Liquor," must be delivered at the offices of the Gas Department, Town Hall, on or before Wednesday, the 26th day of May, 1897.

Forms of Tender and further particulars may be obtained on application (in writing only) to Mr. Charles Nickson, Superintendent of the Department. A deposit of one guinea (which will be returned on receipt of the Tender), must accompany each application for a Tender form.

By Order of the Gas Committee.

WM. HENRY TALBOT,

Town Hall, Manchester,
1st May, 1897.

Town Clerk.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free.

AGENCY—GERMANY.

AGENCY or Depot for Germany in the Grocery, Provision, Drug, Tannin, Dyestuff, or kindred trade, Wanted by Hamburg firm, extensively known and well introduced. Agents in most places; travellers kept. Best references.—Address, H Qu. 6761, care of Rudolf Mosse, Hamburg.

AN Experienced Chemist, who has just completed an important Engagement with a large Corporation, is disengaged. Erection of Plant and control of Tar and Ammonia Works a Speciality. Moderate salary.—Address, "Tar," Chemical Trade Journal Office, Manchester.

ALKALI WORKS Manager or Chemist desires Re-Engagement. Several years' experience in the Manufacture of Acids, Alkali, Bleach, Bichromes, Superphosphates, etc. Well up in Engineering and Building Construction. Good references.—Address, "Manufacture," Chemical Trade Journal Office, Manchester.

ADVERTISER, with wide experience in the Analysis and Manufacture of Acids, Alkalies, Foods, Drugs, Artificial Manures, Tar Products, etc., etc., desires Situation as Chemist, Manager, or Superintendent.—Address, "M.C.S.," Chemical Trade Journal Office, Manchester.

CHEMIST (Diplomas), with 8 years' experience in England and Germany, with capital at disposal, and a connection, desires to join a firm of Chemical Manufacturers in the Midlands.—Apply "Nitro," Chemical Trade Journal Office, Manchester.

DEBENTURE AND PREFERENCE SHARES.

ENGLISH Industrial Limited Liability Companies desirous of placing same, address, "Promptitude," care of Deacon's Advertising Offices, Leadenhall-street, London.

FOREMAN Wanted for Vitriol Works, etc., used to Oxide and smalls, and able to take tests.—Address, "D.E.," Chemical Trade Journal Office, Manchester.

ESSENTIAL OILS.—AGENTS Wanted in all Principal Towns of the United Kingdom by first-class Distillers. Those with good connections amongst Soap Makers, Confectioners, Wholesale Druggists, etc., should write to "K 29," Chemical Trade Journal Office, Manchester.

LABORATORY ASSISTANT.—Youth, 17, well educated, Science Certificates (1st class), Senior Local Camb. &c., steady and trustworthy, with mechanical ability, seeks position in Laboratory, or with a good firm of Apparatus Manufacturers and Laboratory Farnishers; sound references; small salary to start & permanent prospect.—Apply "R.E.," Chemical Trade Journal Office, Manchester.

CORRESPONDENCE SOLICITED.

Miscellaneous.—Cont.

SOAP WORKS MANAGER is open for Engagement; thoroughly practical and up-to-date in the Manufacture of Hard, Soft Household, and Fancy Soaps, and in Perfumery. Excellent references and testimonials.—Address, "Perfume," Chemical Trade Journal Office, Manchester.

WANTED, Situation as Superintendent. Well up in the Manufacture of Acids Bleach, Caustic Soda, etc.; also the Carbonization of Coal, and the recovery of the by-products. Had 20 years' experience in the management of men and plant, the erection of plant and the up-keep of the same.—Address, T. Hughes, Shotton Villa, Shotton, near Chester.

BOILERS, ENGINES, PUMPS, Cast and Wrought-iron TANKS, VACUUM and STEAM PANS, and every description of Second-hand PLANT and MACHINERY. Catalogues sent free on application.—Henry Roberts & Co., Engineers and Copper Smiths, Bancroft Road, Mile End, London, E.

CALCIUM CARBIDE for Sale in Large or Small Quantities.—Apply to E. Jasmin, Frankfurt-on-Maine, Germany.

CHEMICAL TRADE JOURNAL. 10 Volumes to be Sold (several out of print). Bound in green cloth boards, gold lettering. Complete with advertisements, forming a most comprehensive trade catalogue. 10/6 per volume or £5 the set.—Apply to "Y. R." care of Chemical Trade Journal Office, Manchester.

FOR SALE—The Illustrated Journal of Patents for 1895-6; 15s. per year.—Address inquiries to "P.J." Chemical Trade Journal Office, Manchester.

RAILWAY TANKS for Hire.—Brotherton & Co., Ammonia Distillers, Leeds.

THE Lease of a Fully-licensed Soap Factory, together with Plant, Machinery, &c., to be SOLD, situate within three miles of Royal Exchange. For full particulars apply to Bradshaw, Brown & Co., Billiter Square Buildings, E.C.

TO CHEMICAL WORKS and Others.—For SALE, large number of Wrought and Cast Iron TANKS up to 17 feet diameter, all lengths. Enquiries solicited.—Apply, Thos. W. Ward, Fitzalan Chambers, Sheffield.

GAS TAR and **AMMONIACAL LIQUOR** Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE (B.O.V. & R.O.V.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

WOODEN VESSELS of every description, New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

TO BE SOLD, the **LANCASHIRE MANURE COMPANY'S WORKS** at Widnes with Machinery and 24,430 square yards of Freehold Land. Address J. Hosking, 15, Fenwick Street Liverpool.

TO be LET or SOLD, Chemical Works, situated between Marple and Romiley, on the Canal side, and until recently occupied by the Marple Chemical Co. Suitable for Manufacturing Glue, Size, Phosphates, Bleaching Liquor, or any secret processes. Good house attached.—Apply, A. E. Walker, 35, Bishop-treet, Manchester, S.W.

PLATINUM Utensils, Scrap, Lamp Ends, etc. Best Prices given by Derby and Co. 44, Clerkenwell Road, London, E.C. N.B.—Platinum Sold.

MANGANESE ORES up to 95 % Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbonate). **Chrome Ores, Fluorspar, Feldspar, Limespar, Quartz, and Silica**, and all kindred minerals, purity guaranteed, supplied by **JULIAN PANNENBERG, ARNSTADT, THÜRINGEN**.

Samples and Analyses on Application.

J. STIFF & SONS,
MANUFACTURERS OF
CHEMICAL APPARATUS
IN VITRIFIED STONEWARE.
ACID PANS, ACID PIPES & CONNECTIONS, RECEIVERS, CONDENSING
WORMS, RETORTS, COCKS, JARS, BOTTLES & INSULATORS,
BATTERY JARS, POROUS CELLS, &c., &c.
LAMBETH, LONDON, S.E.



**FULLER'S
BONE STEAMER.**

Softens the Bones without
extracting any of the
Nitrogenous Substance.



Extraction of the Grease
within an hour.

ESTIMATES FOR COMPLETE
BONE STEAMING AND GRINDING PLANT.
GRINDING MACHINERY
FOR EVERY DESCRIPTION OF MATERIAL.
W. M. FULLER, Jun.,
33, Great Charles Street, Birmingham

ALBUMENS, Pastes, Arabic So
Vegetable and Animal Size,
GLUES, PREPARED PITHS, P
tated Bone Phosphate, Neatsf
Greases, Manure Materials,

W. KING, Benson St., LIVER

BINDLEY & SON,
GLUE, GELATINE, and
Size Manufactur
Works: SMETHWICK, BIRMINGHAM
Northern Office: 224, Effingham Road,

**HARPERS
LIST.**
PAGES 14 and 1
LAST WEEK.

TUBES

IRON and STEEL (butt or lap welded),
and **FITTINGS** for Gas, Water, Steam, Liquid
Ammonia, and Hydraulic Work,
galvanized white enamelled inside, or coated by Dr. Angus
Smith's Composition. In stock to 8 in. diameter.
COILS for heating, super-heating, distilling and
refrigerating purposes, to 500 feet long without joints.
JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St.
Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN,
MILLSTONE BUILDING
WIRE WEAVER, MACHINE MAKER
AND GENERAL MILL FURNISHING
Sole Maker of **MILNERS**
Patent Conoidal Stone Grind
Especially suitable for
materials, Wet or Dry
Works and Warehouses
Back Church Lane. Parcel Dept.: Basins
Corn Exchange
31, MARK LANE, LONDON



Liverpool: Exchange Chambers,
Glasgow: West Campbell-st.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS

DULTON & CO.,

LAMBETH,
LONDON, S.E.

MANUFACTURERS OF
STONEWARE
CHEMICAL
APPARATUS
OF
ANY DESCRIPTION.

PRICE LISTS
ON APPLICATION.



ACID PUMP.

IMPROVED
STONEWARE
ACID PUMPS.

Each Pump prior to
leaving the Factory
is put into actual
work and tested.

WORKROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.

LUMINO-FERRIC.

ETER SPENCE & SONS,
Manchester Alum Works, MANCHESTER.

VALUATIONS.

Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
and other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No 4413.

Telegraph: "FRASER, ENGINEER, LONDON."

MANGANESE ORES up to

Mn₂O₃ (Oxide), 95 % MnO₂ (Peroxide), and 75 % MnCO₃ (Carbonate),
some Ores, Fluorspar, Feldspar, Limespar, Quartz,
Silica, and all kindred minerals, purity guaranteed, supplied by

IAN PANNENBERG, ARNSTADT, THÜR.

Samples and Analyses on Application.

CHEMICAL PLANT.

W. NEILL & SON.

SPECIALITIES:



GLYCERINE PLANTS.

St. Helens Junc., Lancs.

SOAP MACHINERY.

Tanks
and
Wrot. Ironwork

Tender.

MANCHESTER CORPORATION GAS WORKS.

AMMONIACAL LIQUOR.

THE Gas Committee of the Corpora-
tion of Manchester are prepared to receive
TENDERS for the PURCHASE and REMOVAL of
the AMMONIACAL LIQUOR to be produced at the
Gaythorn, Rochdale Road, and Bradford Road Gas
Works during a period of one or more years, commencing
at noon on the 30th day of June, 1897.

The Committee do not bind themselves to accept the
highest or any Tender.

Sealed Tenders, addressed to the Chairman of the Gas
Committee, and endorsed "Tender for Ammoniacal
Liquor," must be delivered at the offices of the Gas
Department, Town Hall, on or before Wednesday, the 26th
day of May, 1897.

Forms of Tender and further particulars may be obtained
on application (in writing only) to Mr. Charles Nickson,
Superintendent of the Department. A deposit of one
guinea (which will be returned on receipt of the Tender),
must accompany each application for a Tender form.

By Order of the Gas Committee.

Wm. Henry Talbot,

Town Hall, Manchester,
1st May, 1897.

Town Clerk.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.

INSTITUTE OF CHEMISTRY OF GREAT BRITAIN
and IRELAND

(Incorporated by Royal Charter),

30, BLOOMSBURY-SQUARE, LONDON, W.C.

THE NEXT EXAMINATIONS

for the MEMBERSHIP of this Institute will be
held on Tuesday, the 26th day of July, 1897, and three
following days.

In consequence of the increase in the number of candi-
dates whose applications for examination have been
accepted by the Council, it is probable that more than
one examination may be held in July.

Application forms can be obtained from the Secretary at
the above address.

All candidates must produce evidence of having passed a
preliminary examination in subjects of general education,
and of having taken a systematic course of at least three
years' study in one of the colleges approved by the Council,
or of having been engaged for two years in the laboratory
of a Fellow of the Institute, and for two other years in one
of the approved colleges.

The Council desire it to be understood that the right to
use the letters A.I.C. and F.I.C. belongs to persons who
have passed through the course of study and the exami-
nations prescribed by the Institute.

Full particulars are given in the book of regulations for
admission to the membership of the Institute, which may
be obtained from Messrs. Blundell, Taylor & Co., 173,
Upper Thames-street, London, E.C., price one shilling.

By order of the Council,

J. MILLAR THOMSON,

Registrar.

TECHNICAL LIBRARY

OF
THE ATLAS CHEMICAL COMPANY,
SUNDERLAND.

FEES MODERATE. Managers and

Skilled Workmen should become Members. The
Collection includes the most costly and valuable books of
the day on the subjects of Chemistry in all its branches,
Engineering and Metallurgy, Textile, Paper, Leather,
Oil, Paint, Soap, and kindred manufacturing industries.

Many of the largest firms in the country have been
members of the Library for some years.
Many of the volumes cost from £1 to £5 per copy.

NEW CATALOGUE, giving details of some of the
most interesting books, and Rules and Terms of Member-
ship sent on application.

ATLAS CHEMICAL COMPANY,

SUNDERLAND, ENGLAND.

AGENCY—GERMANY.

AGENCY or Depot for Germany in
the Grocery, Provision, Drug, Tannin, Dyestuff,
or kindred trade, Wanted by Hamburg firm, extensively
known and well introduced. Agents in most places;
travellers kept. Best references.—Address, H Qu. 6761,
care of Rudolf Mosse, Hamburg.

ALKALI WORKS Manager or

Chemist desires Re-Engagement. Several years'
experience in the Manufacture of Acids, Alkali, Bleach,
Bichromes, Superphosphates, etc. Well up in Engineer-
ing and Building Construction. Good references.—Address,
"Manufacture," Chemical Trade Journal Office, Man-
chester.

Miscellaneous.—Cont.

AN Experienced Chemist, who has just completed an important Engagement with a large Corporation, is disengaged. Erection of Plant and control of Tar and Ammonia Works a Speciality. Moderate salary.—Address, "Tar," *Chemical Trade Journal Office*, Manchester.

DEBENTURE AND PREFERENCE SHARES.

ENGLISH Industrial Limited Liability Companies desirous of placing same, address, "Promptitude," care of Deacon's Advertising Offices, Leadenhall-street, London.

ESSENTIAL OILS.—AGENTS Wanted in all Principal Towns of the United Kingdom by first-class Distillers. Those with good connections amongst Soap Makers, Confectioners, Wholesale Druggists, etc., should write to "K 29," *Chemical Trade Journal Office*, Manchester.

LABORATORY ASSISTANT.—

Youth, 17, well educated, Science Certificates (1st class), Senior Local Camb., &c., steady and trustworthy, with mechanical ability, seeks position in Laboratory, or with a good firm of Apparatus Manufacturers and Laboratory Furnishers; sound references; small salary to start if permanent prospect.—Apply "R. E.," *Chemical Trade Journal Office*, Manchester.

SOAP WORKS MANAGER is open

for Engagement; thoroughly practical and up-to-date in the Manufacture of Hard, Soft, Household, and Fancy Soaps, and in Perfumery. Excellent references and testimonials.—Address, "Perfume," *Chemical Trade Journal Office*, Manchester.

WANTED, Situation as Superintendent. Well up in the Manufacture of Acids, Bleach, Caustic Soda, etc.; also the Carbonization of Coal and the recovery of the by-products. Had 20 years' experience in the management of men and plant, the erection of plant and the up-keep of the same.—Address, T. Hughes, Shotton Villa, Shotton, near Chester.

WANTED, a Man who thoroughly understands the Process of Making Muriate and Nitrate of Ammonia, and Subliming of Sal Ammoniac. To a good, reliable, and suitable party a permanent job. References required. Write, stating experience and wages, to "A. B.," *Chemical Trade Journal Office*, Manchester.

VITRIOL WORKS.—Wanted, a

Steady Experienced Foreman; state age, wages, and full particulars to "C. G.," *Chemical Trade Journal Office*, Manchester.

WANTED, a Manager for the

Manufacture of Sulphate of Copper on a large scale.—Apply, "S. P.," *Chemical Trade Journal Office*, Manchester.

WANTED, Soap Boiler, thoroughly

Practical in all kinds of Household Soaps, and able to Superintend small Works; must be steady and industrious. Give wages required, age, and present employment; copies of recent testimonials, and other particulars.—Address, "Soap," *Chemical Trade Journal Office*, Manchester.

BOILERS, ENGINES, PUMPS,

Cast and Wrought-iron TANKS, VACUUM and STEAM PANS, and every description of Second-hand PLANT and MACHINERY. Catalogues sent free on application.—Henry Roberts & Co., Engineers and Copper Smiths, Bancroft Road, Mile End, London, E.

CALCIUM CARBIDE for Sale in

Large or Small Quantities.—Apply to E. Jasmin, Frankfurt-on-Maine Germany.

CORRESPONDENCE INVITED

from Consumers of Epsom Salts and Chloride of Strontium, by E. Groschke, Pillitter Buildings, London, E.C.

CHEMICAL TRADE JOURNAL.

10 Volumes to be Sold (several out of print). Bound in green cloth boards, gold lettering. Complete with advertisements, forming a most comprehensive trade catalogue. 10/6 per volume or £5 the set.—Apply to "Y. R." care of *Chemical Trade Journal Office*, Manchester.

FOR SALE—The Illustrated Journal

of Patents for 1895-6; 15s. per year.—Address inquiries to "P. J.," *Chemical Trade Journal Office*, Manchester.

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMI
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,

WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 90

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE

ALL SIZES
OF CARBOYS
KEPT

& KINDS
& HAMPERS
IN STOCK.



ALBUMENS, Pastes, Arabic Solution, Vegetable and Animal Size, Gums, **GLUES**, PREPARED PITHS, Precipitated Bone Phosphate, Neatsfoot Oil, Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL.

ACTUAL MAKER OF

CHEMICAL & ASSAY BALANCES
and WEIGHTS,

From £1. 5s. to £15. Portable Balance. £5. **REPAIRS.** Four years with Certifying.

C. T. PATTRIDGE, 1, New Charles St., City Rd London, E. C.

TUBES

IRON and STEEL (butt or lap welded), and **FITTINGS** for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 36 in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,

Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

SULPHURIC ACID.

JOHN NICHOLSON & SONS

LTD., Chemical Works, LEEDS, specially this ACID from SULPHUR, for making SULPHATE OF AMMONIA of high quality and good colour, in our own Railway Tank-Wagons or Carboys. references and all particulars supplied on application.

BINDLEY & SON, L

GLUE, GELATINE, and

Size Manufacture

Works: SMETHWICK, BIRMINGHAM

Northern Office: 224, Effingham Road, S

HARPERS'
LIST.

PAGES 14 and 15

TWO WEEKS AGO



MANGANESE,

Up to 95%

FLUOR SPAR, finest 98/100 per cent white quality.

WILHELM MINNER, Arnstadt, Germany

BRYAN CORCORAN, I
MILLSTONE BUILD



WIRE WEAVER, MACHINE MANUFACTURER

AND GENERAL MILL FURNISH

Sole Maker of MILLBURN

Patent Conoidal Stone Grinding

Especially suitable for

materials, Wet or Dry

Works and Warehouses:

Back Church Lane. Parcel Dept.: Basement

Corn Exchange

31, MARK LANE, LONDON

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers, Glasgow: West Campbell-st.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKERS' PATENT
AIR COMPRESSING ENGINES.
GAS COMPRESSING ENGINES.
150,000 I.H.P. ALREADY AT WORK.

WALKERS' PATENT
EXHAUST AND BLAST FANS.

SPENCE'S ALUM.

PETER SPENCE & SONS,

Manchester Alum Works, MANCHESTER.

R. W. GREEFF & CO.,
3, EASTCHEAP, LONDON, E.C.
IMPORTERS OF

PUREST SULPHATE OF ALUMINA.
FLUORIDE OF CHROME (Patented). ANTIMONY SALTS.
TARTAR EMETIC. HYPOSULPHITE OF SODA.
SUGAR OF LEAD, WHITE AND BROWN.
ZINC OXIDE, OXALIC, ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

SPECIALITIES:—

SODA ASH 58%	Phosphoric Acid	Castor Oil	Amidol, Metol, Glycin,
POTASHES	Acetates	Olive Oil	Thiocarbamid and other
SALTCAKE	Oxalic Acid	Essent. Oils	Photographicals,
BLEACH	Tartaric Acid	Glucose	Lumieres,
LITHIA SALTS	Salicylic Acid	Grape Sugar	Dry Plates,
BORAX	Carbolic Acid	Cane Syrup	&c., &c.
MERCURIALS	Camphor	Treacle	
SUL. COPPER	Stearine	Nitrate of Silver	(Pure)
PRUSSIANES	Glycerine		
CYANIDES	OLEINE		
METALS			
MINERALS			
BRIMSTONE			
SULPHUR			

IMPORTERS—Commission Merchants—EXPORTERS.
FUERST BROS.
LONDON: 17, Philpot Lane, E.C.

HEADQUARTERS

FOR ALL
HEAVY OR FINE

CHEMICALS,

Pharmaceutical Products,

Photographic Developers,

Drysalteries and Drugs,

Also OILS and PRODUCE.

SAMPLES AND PRICES ON APPLICATION.

Telegrams
"FUERST, LONDON."

Telephone
No. 1050.

Tenders.

MANCHESTER CORPORATION.

THE Cleansing Committee of the Manchester Corporation are prepared to receive TENDERS for twelve months' Supplies of LIQUID CARBOLIC ACID, BEST BURG, SMITHY NUIS and STEAM COAL.

Specifications may be obtained from Mr. R. D. Callison, Indoor and Estates Superintendent of the Cleansing Department, Town Hall Manchester.

Tenders must be sent in before 12 o'clock on Saturday, the 29th May. The Committee do not bind themselves to accept the lowest or any Tender.

WM. HENRY TALBOT,
Town Clerk.

SCARBOROUGH GAS COMPANY.

TAR AND AMMONIACAL LIQUOR.

THE Directors of the Scarborough Gas Company invite TENDERS for the SURPLUS TAR and the whole of the AMMONIACAL LIQUOR to be produced at their Works for one or more years, from the 1st day of July next.

Tenders for Liquor may be submitted either at a fixed price per ton, or on a sliding scale, regulated by the price of Sulphate. Preference, will, however, be given to the latter.

Further particulars may be obtained on application to the undersigned, to whom sealed Tenders (duly endorsed) must be delivered not later than noon, on Saturday, the 12th of June next.

The Directors do not bind themselves to accept the highest or any Tender.

By Order of the Board,
(Signed) J. HOLLIDAY,

Engineer and Secretary.

Gas Offices: 32, Westborough.
Scarborough, May 19th, 1897.

COUNTY BOROUGH OF OLDHAM.

THE Gas Works Committee invite TENDERS for the Purchase of about 7,200 Tons of TAR and 2,500,000 Gallons of AMMONIACAL LIQUOR, to be produced at their different Works during one year, commencing 1st July next.

Specification and Form of Tender may be obtained from Mr. Arthur Andrew, Gas and Water Offices Oldham, to whom Tenders are to be sent on or before Tuesday, June 8th, 1897.

A. NICHOLSON,
Town Clerk.

Oldham, 18th May, 1897.

THE Accrington District Gas and

Water Board invite TENDERS for the surplus TAR and AMMONIACAL LIQUOR which may be produced at their Accrington and Great Harwood Works during the Year from the 30th of June to the 30th of June, 1898.

Coal Carbonized at Accrington, 16,400 Tons.
Do. Great Harwood, 11,200 "

Tenders, endorsed, to be sent to A. H. Aitken, Esq., Clerk to the Board, on or before Thursday, the 3rd of June.

Particulars can be obtained from the undersigned.
CHAS. HARRISON,
General Manager.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free.

AN Experienced Chemist, who has just completed an important Engagement with a large Corporation, is disengaged. Erection of Plant and control of Tar and Ammonia Works a Speciality. Moderate salary.—Address, "Tar," Chemical Trade Journal Office, Manchester.

DEBENTURE AND PREFERENCE SHARES.

ENGLISH Industrial Limited Liability Companies desirous of placing same, address, "Promptitude," care of Deacon's Advertising Offices, Leadenhall-street, London.

LABORATORY ASSISTANT.—

Youth, 17, well educated, Science Certificates (1st class), Senior Local Camb., &c., steady and trustworthy, with mechanical ability, seeks position in Laboratory, or with a good firm of Apparatus Manufacturers and Laboratory Furnishers; sound references; small salary to start if permanent prospect.—Apply "R. E.," Chemical Trade Journal Office, Manchester.

CORRESPONDENCE SOLICITED.

Miscellaneous.—Cont.

VITRIOL WORKS.—Wanted, a Steady Experienced Foreman; state age, wages, and full particulars to "C. G." *Chemical Trade Journal* Office, Manchester.

WANTED, Laboratory Assistant, with knowledge of Lead Analysis preferred.—Full particulars to "D.S.," care of Street & Co., 30, Cornhill, London.

WANTED, Situation as Superintendent. Well up in the Manufacture of Acids, Bleach, Caustic Soda, etc.; also the Carbonization of Coal and the recovery of the by-products. Had 20 years' experience in the management of men and plant, the erection of plant and the up-keep of the same.—Address, T. Hughes, Shotton Villa, Shotton, near Chester.

WANTED, a Man who thoroughly understands the Process of Making Muriate and Nitrate of Ammonia, and Subliming of Sal Ammoniac. To a good, reliable, and suitable party a permanent job. References required. Write, stating experience and wages, to "A. B.," *Chemical Trade Journal* Office, Manchester.

BOILERS, ENGINES, PUMPS, Cast and Wrought-iron TANKS, VACUUM and STEAM PANS, and every description of Second-hand PLANT and MACHINERY. Catalogues sent free on application.—Henry Roberts & Co., Engineers and Copper Smiths, Bancroft Road, Mile End, London, E.

CALCIUM CARBIDE for Sale in Large or Small Quantities.—Apply to E. Jasmin, Frankfort-on-Maine Germany.

CALCIUM CARBIDE for Sale, 2,000 tons in twelve monthly deliveries in a United States port, at 55 dollars f.o.b. Packages extra.—Address, "Calcium Carbide," care of Messrs. Deacon & Co., 154, Leadenhall-street, London, E.C.

FOR SALE, 10 Bound Volumes of the *CHEMICAL TRADE JOURNAL* for the years '92, '93, '94, '95, and '96. Complete with advertisements, and in first-class condition.—Offers for the set or singly to "T. S.," *Chemical Trade Journal* Office, Manchester.

FOR SALE—The Illustrated Journal of Patents for 1895-6; 15s. per year.—Address inquiries to "P. J.," *Chemical Trade Journal* Office, Manchester.

FILTER PRESSES, in first-class condition, for Sale, with washing appliances, large sizes.—Address, "Filter Presses," *Chemical Trade Journal* Office, Manchester.

FILTER PRESS, with 36 Iron Plates, 27 in. square, £30. **HYDRO-EXTRACTOR,** 36 in. cage, under driven by belt, £18. **BOILER TANK,** 3 ft. 6 in. by 6 ft. 6 in. diameter, £24, on truck.—J. W. Martin, 29, Corporation-street, Manchester.

NO. 515 of the *Chemical Trade Journal*. Double price (6s.) is offered for clean copies of this issue.—Address, J., *Chemical Trade Journal* Office, Manchester.

RAILWAY TANKS for Hire.—Brotherton & Co., Ammonia Distillers, Leeds.

SALT CAKE Decomposing PAN for Sale; in good condition, weighing about 3 tons. Can be seen at Masbore Chemical Works, College-road, Rotherham.—Apply, Sheffield Chemical Company, Attercliffe, Sheffield.

TO CHEMICAL WORKS and Others.—For SALE, large number of Wrought and Cast Iron TANKS up to 17 feet diameter, all lengths. Enquiries solicited.—Apply, Thos. W. Ward, Fitzalan Chambers, Sheffield.

WANTED, Soda Crystallizing Pans. Price and particulars to Job Day, Garden-street, Leeds.

GAS TAR and **AMMONIACAL LIQUOR** Wanted.—Apply, Josiah Hardman, Milton, Staffs.

MANGANESE ORES up to

95 % Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbonate) **Chrome Ores, Fluorspar, Feldspar, Limespar, Quartz, Silica,** and all kindred minerals, purity guaranteed, supplied by **JULIAN PANNENBERG, ARNSTADT, THÜR.**

Samples and Analyses on Application.

J. STIFF & SONS,

MANUFACTURERS OF

CHEMICAL APPARATUS

IN VITRIFIED STONEWARE.

ACID PANS, ACID PIPES & CONNECTIONS, RECEIVERS, CONDENSING WORMS, RETORTS, COCKS, JARS, BOTTLES & INSULATORS, BATTERY JARS, POROUS CELLS, &c., &c.

LAMBETH, LONDON, S.E.



BINDLEY & SON, Ltd.,

GLUE, GELATINE, and

Size Manufacturers

Works: SMETHWICK, BIRMINGHAM.

Northern Office: 224, Effingham Road Sheffield.

HARPERS' LIST.

PAGES 14 and 15
THREE WEEKS AGO.

ALBUMENS, Pastes, Arabic Solution, Vegetable and Animal Size, Gums, **GLUES,** PREPARED PITHS, Precipitated Bone Phosphate, Neatsfoot Oil, Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL.

TUBES

IRON and STEEL (butt or lap welded), and **FITTINGS** for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8 in. diameter. **COILS** for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,

Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

FULLER'S

BONE STEAMER.

Softens the Bones without extracting any of the Nitrogenous Substance.



Extraction of the Grease within 48 hours.

ESTIMATES FOR COMPLETE **BONE STEAMING AND GRINDING PLANT.**

GRINDING MACHINERY

FOR EVERY DESCRIPTION OF MATERIAL.

W. M. FULLER, Jun.,

88, Great Charles Street, Birmingham

BRYAN CORCORAN, LTD.
MILLSTONE BUILDER.



WIRE WEAVER, MACHINE MANUFACTURER AND GENERAL MILL FURNISHER. Sole Maker of **MILBURN'S** Patent Conoidal Stone Grinding Mills. Especially suitable for certain materials, Wet or Dry.

Works and Warehouses:

Back Church Lane. Parcel Dept.: Basement of the Corn Exchange

31, MARK LANE, LONDON.

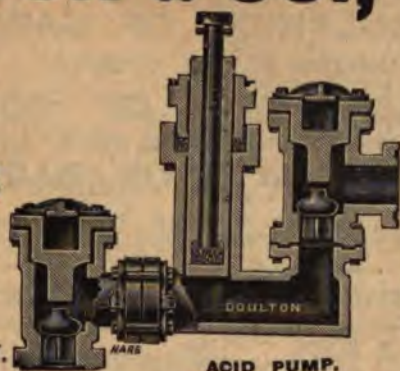
CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool Exchange Chambers, Glasgow: 5, West Campbell St.

M. S. B. & Co., 10, Abchurch Lane, London: 1, West Campbell St.

DULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
STONEWARE
CHEMICAL
APPARATUS
OF
DESCRIPTION.PRICE LISTS
ON APPLICATION.

ACID PUMP.

**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.WORKROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.**LUMINO-FERRIC.****PETER SPENCE & SONS,**
Manchester Alum Works, MANCHESTER.**VALUATIONS.**Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No. 4413.

Telegraph: "FRASER, ENGINEER, LONDON."

MANGANESE ORES up toIn₂O₃ (Oxide), 95 % MnO₂ (Peroxide), and 75 % MnCO₃ (Carbonate),
Pure Ores, Fluorspar, Feldspar, Limespar, Quartz,
Silica, and all kindred minerals, purity guaranteed, supplied by**FRANZ PANNENBERG, ARNSTADT, THÜR.**

Samples and Analyses on Application.

St. Helens.

TELEPHONE:
No. 20, St. Helens.**CHEMICAL PLANT.**
W. NEILL & SON.

SPECIALITIES:



GLYCERINE PLANTS.

St. Helens Junction, Lancs.

SOAP MACHINERY.Tanks
and
Wrought Ironwork**Tenders.**SCARBOROUGH GAS COMPANY.
TAR AND AMMONIACAL LIQUOR.**THE Directors of the Scarborough**
Gas Company invite TENDERS for the SURPLUS
TAR and the whole of the AMMONIACAL LIQUOR
to be produced at their Works for one or more years, from
the 1st day of July next.Tenders for Liquor may be submitted either at a fixed
price per ton, or on a sliding scale, regulated by the price
of Sulphate. Preference, will, however, be given to the
latter.Further particulars may be obtained on application to
the undersigned, to whom sealed Tenders (duly endorsed)
must be delivered not later than noon, on Saturday, the
12th of June next.The Directors do not bind themselves to accept the
highest or any Tender.By Order of the Board,
(Signed) J. HOLLIDAY,
Engineer and Secretary.Gas Offices: 32, Westborough.
Scarborough, May 15th, 1897.

COUNTY BOROUGH OF OLDHAM.

THE Gas Works Committee invite
TENDERS for the Purchase of about 7,200 Tons of
TAR and 2,500,000 Gallons of AMMONIACAL LIQUOR,
to be produced at their different Works during one year,
commencing 1st July next.Specification and Form of Tender may be obtained from
Mr. Arthur Andrew, Gas and Water Offices, Oldham, to
whom Tenders are to be sent on or before Tuesday, June
8th, 1897.

Oldham, 18th May, 1897.

A. NICHOLSON,
Town Clerk.**THE Accrington District Gas and**Water Board invite TENDERS for the surplus TAR
and AMMONIACAL LIQUOR which may be produced
at their Accrington and Great Harwood Works during
the Year from the 1st of June to the 30th of June, 1898.
Coal Carbonized at Accrington, 16,400 Tons.Do. Great Harwood, 11,200
Tenders, endorsed, to be sent to A. H. Aitken, Esq.,
Clerk to the Board, on or before Thursday, the 3rd of
June.Particulars can be obtained from the undersigned.
CHAS. HARRISON,
General Manager.**Miscellaneous.**Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.**AN Experienced Chemist, who has**
just completed an important Engagement with a
large Corporation, is disengaged. Erection of Plant and
control of Tar and Ammonia Works a Speciality. Moderate
salary.—Address, "Tar," Chemical Trade Journal Office,
Manchester.

DEBENTURE AND PREFERENCE SHARES.

ENGLISH Industrial Limited Lia-
bility Companies desirous of placing same, address,
"Promptitude," care of Deacon's Advertising Offices,
Leadenhall-street, London.**EXPERIENCED Chemical Plumber**
wants a Situation. Distance no object.—Address,
"L. B.," Chemical Trade Journal Office, Manchester.**TRAVELLER, well acquainted with**
the North and Midlands, seeks Re-engagement, or
would accept good commission.—Address, "Vulcan,"
Chemical Trade Journal Office, Manchester.**BOILERS, ENGINES, PUMPS,**
Cast and Wrought-iron TANKS, VACUUM and
STEAM PANS, and every description of Second-hand
PLANT and MACHINERY. Catalogues sent free on
application.—Henry Roberts & Co., Engineers and Copper
smiths, Bancroft Road, Mile End, London, E.**CALCIUM CARBIDE for Sale in**
Large or Small Quantities.—Apply to E. Jasmin,
Frankfort-on-Maine, Germany.

Miscellaneous.—Cont.

CALCIUM CARBIDE for Sale, 2,000 tons in twelve monthly deliveries in a United States port, at 15 dollars f.o.b. Packages extra.—Address, "Calcium Carbide," care of Messrs. Deacon & Co., 154 Leadenhall-street, London, E.C.

CARBONATE of BARYTES, 90 to 94 and 96 to 98 per cent., for Sale.—Apply, "Barytes," Chemical Trade Journal Office, Manchester.

CORRESPONDENCE INVITED from Consumers of Epsom Salts and Chloride of Strontium, by E. Groschke, Filitler Buildings, London, E.C.

FOR SALE, a newly-started **SOAP FACTORY**. Disposed of through illness of Principal. Exceptional prospects; in good district; with access by road, rail, and river. Easy terms for early disposal. The nucleus of a good business has been laid, and can be easily developed.—Address, "S. B." Chemical Trade Journal Office, Manchester.

FOR SALE, 10 Bound Volumes of the **CHEMICAL TRADE JOURNAL** for the years '92, '93, '94, '95, and '96. Complete with advertisements, and in first-class condition.—Offers for the set or singly to "T. S.," Chemical Trade Journal Office, Manchester.

FOR SALE—The Illustrated Journal of Patents for 1895-6: 15s. per year.—Address inquiries to "P. J." Chemical Trade Journal Office, Manchester.

FILTER PRESSES, in first-class condition, for Sale, with washing appliances, large sizes.—Address, "Filter Presses," Chemical Trade Journal Office, Manchester.

RAILWAY TANKS for Hire.—Brotherton & Co., Ammonia Distillers, Leeds.

SULPHIDE of IRON FOR SALE, good quality.—For price, address John Nicholson and Sons, Limited, Chemical Works, Hunslet, Leeds.

TO CHEMICAL WORKS and Others.—For SALE, large number of Wrought and Cast Iron TANKS up to 17 feet diameter, all lengths. Enquiries solicited.—Apply, Thos. W. Ward, Fitzalan Chambers, Sheffield.

WANTED, 2 Second-hand Hydro-Extractors, must be in good condition.—Address, giving full particulars, to "H. C.," Chemical Trade Journal Office, Manchester.

WANTED, Offers for a First-class **UMBER** in fine powder, and contains Manganese. Can produce ten tons per week.—Samples and particulars by applying to T. C. Wilthew, 21, Carlisle-square, Newcastle-on-Tyne.

WANTED to Purchase for abroad, MSS. Articles, practical recipes, and Trade secrets of every description in Oils, Colors, Paints, Varnishes, Soaps, Greases, Chemicals, etc., new methods working waste products, and any good articles connected with the allied trades.—Address, "C. S. J.," Chemical Trade Journal Office, Manchester.

GAS TAR and AMMONIACAL LIQUOR Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE (S.O.V. & R.O.V.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

WOODEN VESSELS of every description, New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,

WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 96/98%

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

ALL SIZES
OF CARBOYS
KEPT

& KINDS
& HAMPERS
IN STOCK.



ALBUMENS, Pastes, Arabic Solution,
Vegetable and Animal Size, Gums,
GLUES, PREPARED PITHS, Precipitated Bone Phosphate, Neatsfoot Oil,
Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL.

ACTUAL MAKER OF

CHEMICAL & ASSAY BALANCES
and WEIGHTS,

From £1. 5s. to £15. Portable Balance. £5. **REPAIRS.**
Four years with Oertling.

G. T. PATRIDGE, 1, New Chancery St., City Rd. London, E.C.

TUBES

IRON and STEEL (butt or lap welded),
and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,

Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

Manlove, Alliott & Co. Ltd.,
ENGINEERS,
NOTTINGHAM.

See Advertisement in first issue of this month.

BINDLEY & SON, Ltd.,
GLUE, GELATINE, and
Size Manufacturers

Works: SMETHWICK, BIRMINGHAM.

Northern Office: 224, Effingham Road Sheffield.

HARPERS' LIST.

PAGES 14 and 15
FOUR WEEKS AGO.

MANGANESE,
Up to 95%
FLUOR SPAR, finest 98/99 per cent. white quality.
WILHELM MINNER, Arnstadt, Germany.

BRYAN CORCORAN, L.TD.
MILLSTONE BUILDER.



WIRE WEAVER, MACHINE MANUFACTURER
AND GENERAL MILL FURNISHER.
Sole Maker of **MILBURN'S**
Patent Conoidal Stone Grinding Mills.
Especially suitable for cartals materials, Wet or Dry.

Works and Warehouses:

Back Church Lane. Parcel Dept.: Basement of the Corn Exchange
31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers, Glasgow: West Campbell st.

Manchester: Oldham Road, London: 30, Broad St.

DULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
**STONEWARE
CHEMICAL
APPARATUS**
OF
ANY DESCRIPTION.PRICE LISTS
ON APPLICATION.

ACID PUMP.

**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.SHOWROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.**LUMINO-FERRIC.****ETER SPENCE & SONS,**
Manchester Alum Works, MANCHESTER.**VALUATIONS.**Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
and other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No. 4413.

Telegraph: "FRASER, ENGINEER, LONDON."

MANGANESE ORES up to Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % $MnCO_3$ (Carbonate),
some Ores, Fluorspar, Feldspar, Limespar, Quartz,
Silex, and all kindred minerals, purity guaranteed, supplied by**LIAN PANNENBERG, ARNSTADT, THÜR.**

Samples and Analyses on Application.

SHEFFIELD:
ST. HELENS.TELEPHONE:
No. 20, St. Helens.**CHEMICAL PLANT.**
W. NEILL & SON.

SPECIALITIES:



GLYCERINE PLANTS.

St. Helens Junc., Lancs.

SOAP
MACHINERY.Tanks
and
Wrought Ironwork**Tenders.****MANCHESTER CORPORATION GAS WORKS
SPENT OXIDE.**THE Gas Committee of the Corpora-
tion of Manchester are prepared to receive
TENDERS for the PURCHASE and IMMEDIATE
REMOVAL of about 200 tons of SPENT OXIDE, now
lying at the Gaythorn Gas Works.The Committee do not bind themselves to accept the
highest or any Tender.Sealed Tenders, addressed to the Chairman of the Gas
Committee and endorsed "Tender for Spent Oxide" must
be delivered at the offices of the Gas Department not later
than 10 a.m. on Friday, the 11th inst.Forms of Tender and samples of the oxide from bulk
may be obtained on application to Mr. Charles Nickson,
Superintendent of the Gas Department.

By order,

Town Hall, Manchester,
4th June, 1897.WM. HENRY TALBOT,
Town Clerk.**TIPTON GAS WORKS.****COAL CONTRACTS.**THE Gas Committee of the Tipton
Urban District Council are prepared to receive
TENDERS for the Supply of GAS COAL, for a period
of one, two, or three years, from 1st July next, to be
delivered, carriage free, to the Gas Works Siding (L. and
N. W. Railway).Specifications and Form of Tender may be obtained at
the Gas Works, on application to Mr. Vincent Hughes
the Engineer and Manager.Sealed and endorsed Tenders to be sent to me the
undersigned, not later than 10 a.m. on Saturday, the 26th
inst.The Committee do not bind themselves to accept the
lowest or any Tender.

By Order,

Public Offices, Tipton,
11th June, 1897.GEO. M. WARRING,
Clerk to the Council.**BOROUGH OF HEYWOOD.**THE Gas Committee invite Tenders
for Surplus TAR. Estimated quantity, 650 Tons.
Further particulars and Form of Tender may be obtained
from Mr. W. Whatmough, Gas Manager.Tenders, endorsed "Tar," to be sent to me not later
than Tuesday, June 15th, 1897.

By order,

Municipal Buildings, Heywood,
May 25th, 1897.J. H. BALDWIN,
Town Clerk.**Miscellaneous.**Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.**DEBENTURE AND PREFERENCE SHARES.****ENGLISH Industrial Limited Lia**
bility Companies desirous of placing same, address,
"Promptitude," care of Deacon's Advertising Offices,
Leadenhall-street, London.**BOILERS, ENGINES, PUMPS,**Cast and Wrought-iron TANKS, VACUUM and
STEAM PANS, and every description of Second-hand
PLANT and MACHINERY. Catalogues sent free on
application.—Henry Roberts & Co., Engineers and Copper
smiths, Bancroft Road, Mile End, London, E.**CALCIUM CARBIDE for Sale in**Large or Small Quantities.—Apply to E. Jasmir
Frankfort-on-Maine Germany.**COBALT ORE FOR SALE.—For**particulars apply to "N.G.," "Chemical Trade Journal"
Office, Manchester.**CORRESPONDENCE INVITED**from Consumers of Epsom Salts and Chloride of
Strontium, by E. Groschke, Lillies Buildings, London,
E.C.**FOR SALE, 10 Bound Volumes of**the CHEMICAL TRADE JOURNAL for the
years '92, '93, '94, '95, and '96. Complete with advertise-
ments and in first-class condition.—Offers for the set or
singly to "T.S.," Chemical Trade Journal Office, Man-
chester.

Miscellaneous.—Cont.

FOR SALE—The Illustrated Journal of Patents for 1895-6; 15s. per year.—Address inquiries to "P.J." Chemical Trade Journal Office, Manchester.

FILTER PRESSES, in first-class condition, for Sale, with washing appliances, large sizes.—Address, "Filter Presses," Chemical Trade Journal Office, Manchester.

SULPHIDE of IRON FOR SALE, very good quality. Inquiries solicited.—Address John Nicholson and Sons, Limited, Chemical Works, Hunslet, Leeds.

TWO HYDRAULIC PRESSES for SALE, in first-class condition. 10 to 15 ton; working pressure 4 tons.—Apply, Brotherton and Co., Ammonia Distillers, Leeds.

TO CHEMICAL WORKS and Others.—For SALE, large number of Wrought and Cast Iron TANKS up to 17 feet diameter, all lengths. Enquiries solicited.—Apply, Thos. W. Ward, Fitzalan Chambers, Sheffield.

WANTED a Mill for Grinding Mineral Ores in Water. Must turn out a finely levigated article, and must be cheap.—Price and full particulars to "S. 37," c/o C. Birchall, Advertisement Contractor, Liverpool.

WANTED, Offers for about a Score of Glass Retorts, used for Acid Concentration.—Apply, Dublin Vitriol Works, Annesley Bridge, Dublin.

WANTED to Purchase for abroad, MSS. Articles, practical recipes, and Trade secrets of every description in Oils, Colors, Paints, Varnishes, Soaps, Greases, Chemicals, etc., new methods working waste products, and any good articles connected with the allied trades.—Adress, "C. S. J.," Chemical Trade Journal Office, Manchester.

GAS TAR and AMMONIACAL LIQUOR Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE (a.o.v. & s.o.v.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

WOODEN VESSELS of every description. New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street Liverpool.

TO be LET or SOLD, Chemical Works, situated between Marple and Romiley, on the Canal side and until recently occupied by the Marple Chemical Co. Suitable for Manufacturing Glue, Size, Phosphates, Bleaching Liquor, or any secret processes. Good house attached.—Apply, A. E. Walker, 36, Bishopstree, Manchester, S.W.

PLATINUM Utensils, Scrap, Lamp Ends, etc. Best Prices given by Derby and Co. 44, Clerkenwell Road, London, E.C. N.B. Platinum Sold.

"UP-TO-DATE" RECIPES, NEW INVENTIONS and SPECIALITIES in Oils, Greases, Soaps, Paints, Varnishes, Enamels, Blackings, Blues, Polishes, etc., etc., practical working recipes with latest improved English, Continental and American methods. Prize and Gold Medal brands. Cheapened Substitutes. Utilization of Wastes and Refuse, etc.; any samples matched. Write for Lists.—Lewis Jameson & Co. Balmoral buildings, 97, Queen Victoria-street, London.

BLAYDON MANURE AND ALKALI COMP'S PURE WHITE SULPHATE OF ALUMINUM, BLANC FIXE, CHLORIDE, NITRATE, AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP'S

HYPO-SULPHITE OF SODA,
WALTHER FELD & CO'S

PURE PRECIP. CARBONATE OF BARYTES 96

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE

ALL SIZES
OF CARBOYS
KEPT
& KINDS
& HAMPERS
IN STOCK.



ALBUMENS, Pastes, Arabic Solution, Vegetable and Animal Size, Gums, GLUES, PREPARED PITHS, Precipitated Bone Phosphate, Neatsfoot Oil, Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL.

ACTUAL MAKER OF
CHEMICAL & ASSAY BALANCES and WEIGHTS,

From £1. 5s. to £15. Portable Balance, £5. **REPAIRS.** Four years with Oertling.

G. T. PATRIDGE, 1, New Charles St., City Rd London, E.C.

TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 3in. diameter. **COILS** for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

SULPHURIC ACID.

JOHN NICHOLSON & SONS LTD., Chemical Works, LEEDS, specially this ACID from SULPHUR, for making SULPHATE OF AMMONIA of high quality and good colour, in our own Railway Tank-Wagons or Carboys, references and all particulars supplied on application.

BINDLEY & SON, LONDON
GLUE, GELATINE, and
Size Manufacture

Works: SMETHWICK, BIRMINGHAM
Northern Office: 224, Effingham Road, 81

HARPERS' LIST.

PAGES 14 and 15
LAST WEEK.

MANGANESE,
Up to 95%
FLUOR SPAR, finest 98.99 per cent white quality.
WILHELM MINNER, Arnstadt, Germany.

BRYAN CORCORAN, MILLSTONE BUILDINGS



WIRE WEAVER MACHINE MANUFACTURER AND GENERAL MILL FURNISH
Sole Maker of **MILBURN** Patent Conoidal Stone Grinding
Especially suitable for cement materials, Wet or Dry Works and Warehouses.
Back Church Lane. Parcel Dept.: Basement
Corn Exchange
31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool Exchange Chambers,
Glasgow: West Campbell st.

DULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
**STONEWARE
CHEMICAL
APPARATUS**
OF
DESCRIPTION.PRICE LISTS
APPLICATION.

ACID PUMP.

**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.WORKROOMS: 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 38 and 40, Bothwell St., Glasgow;
6, Rue de Paradis, Paris.**LUMINO FERRIC.****ETER SPENCE & SONS,**
Manchester Alum Works, MANCHESTER.**VALUATIONS.**Messrs. W. J. FRASER and CO., Engineers, 98, Commercial Road East,
London, undertake Valuations of and Reports on Engineering Plant and
Machinery for Fire Assessment, Partnership, Company Formation, Probate,
and other purposes. Drawings and Specifications prepared for New
Engineering Plant on fixed charges.

Telephone No 4413.

Telegraph: "FRASER, ENGINEER, LONDON."

MANGANESE ORES up to Mn_2O_3 (Oxide), 95 % MnO_2 (Peroxide), and 75 % MnCO_3 (Carbonate),
some Ores, Fluorspar, Feldspar, Limespar, Quartz,
Silica, and all kindred minerals, purity guaranteed, supplied by**AN PANNENBERG, ARNSTADT, THÜR.**

Samples and Analyses on Application.

ANIS:
St. Helens.TELEPHONE 2
No. 20, St. Helens.**CHEMICAL PLANT.**
W. NEILL & SON.

SPECIALITIES:



GLYCERINE PLANTS.

St. Helens Juno., Lancs.

SOAP
MACHINERY.Tanks
and
Wrot. Ironwork**Tender.**

READING GAS COMPANY.

T A R.

THE Directors of the Reading Gas
Company invite TENDERS for the Purchase of
their SURPLUS TAR for one year, commencing on the
1st July next.Specifications for the contract will be forwarded on appli-
cation.

Rail communication direct to the Works.

Tenders, endorsed "Tender for Tar," must be delivered
not later than Monday, the 28th of June, to7, King Street, Reading,
June 10th, 1897.ARTHUR H. CANE,
Secretary.**Miscellaneous.**Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.**TANKS** for Gas and Chemical Works,
Evaporating Pans, etc., Steel, Wrought or Cast
Iron, made to any dimensions. Several Second-hand,
up to 270,000 gallons capacity. New and Second-hand Gas
Apparatus offered cheap.—J. Firth Blakeley, Engineer,
Ravensthorpe, Yorks.**CHEMIST** Seeks Re-engagement in
Laboratory or Works. Seven years' experience in
Analytical Work, and Manufacture of Soda Ash, Caustic
Soda, Bleaching Powder, Soda Crystals, Bicarb.
Muriatic Acid, etc. Chemical honours, 5 years' training
at Technical Institute, and holder of Scholarship for
Chemistry. Age 22, and salary required very moderate.
Very good references.—Address, "Soda," Chemical Trade
Journal Office, Manchester.

DEBENTURE AND PREFERENCE SHARES.

ENGLISH Industrial Limited Lia-
bility Companies desirous of placing same, address,
"Promptitude," care of Deacon's Advertising Offices,
Leadenhall-street, London.**MANAGER or FOREMAN** for
Chemical Works in Yorkshire, Smalls and Spent
Oxide; must be competent to take entire management;
state age and experience, and wage required.—Address,
"T.V.," Chemical Trade Journal Office, Manchester.**RELIABLE AGENT**, who has a
good connection with Dyers Wanted in Manchester,
for the Sale of Technical Lactic Acid. Terms for the
Supply of Crude Acid desired from Refiners.—State
references to X 97, care of Neyroud and Son, 14, Queen
Victoria-street, London, E.C.**TINSCRAP—ELECTROLYSIS.**Chemical Works open to introduce this industry are
invited to write for particulars to F. Sebaldt, Louvain
(Belgium.)**WANTED**, Lowest Quotation for
SPENT CHAR (Animal Charcoal), in 20 to 30
ton lots, stating Percentage of Phosphate of Lime, f.o.b.
Liverpool or Greenock.—Address, "Char," Chemical
Trade Journal Office, Manchester.**BERICHTE DER DEUTSCHEN**
CHEMISCHEN GESELLSCHAFT for SALE,
1870-1892 inclusive; 56 volumes; bound, and in very good
condition.—Offers to "Berichte," Chemical Trade Journal
Office, Manchester.**BOILERS, ENGINES, PUMPS,**
Cast and Wrought-iron TANKS, VACUUM and
STEAM PANS, and every description of Second-hand
PLANT and MACHINERY. Catalogues sent free on
application.—Henry Roberts & Co., Engineers and Copper
smiths, Bancroft Road, Mile End, London, E.**CALCIUM CARBIDE** for Sale in
Large or Small Quantities.—Apply to E. Jasmin,
Frankfort-on-Maine, Germany.**CRUDE SULPHOCYANIDE OF**
COPPER FOR SALE.—J. B. Aitken, Sal Ammoniac
Works, Widnes.

Miscellaneous.—Cont.

DISINTEGRATOR (Devil). Almost New, only in use a few weeks, 20 in. ring, 8 to 12 horse power, 800 revolutions per minute. Weight, 18 cwt. Price £40.—Apply W. Brooke and Sons, Hyde, near Manchester.

FOR SALE, 10 Bound Volumes of the **CHEMICAL TRADE JOURNAL** for the years '92, '93, '94, '95, and '96. Complete with advertisements, and in first-class condition.—Offers for the set or singly to "T.S." Chemical Trade Journal Office, Manchester.

FOR SALE—The Illustrated Journal of Patents for 1895-6; 15s. per year.—Address inquiries to "P.J." Chemical Trade Journal Office, Manchester.

FOR SALE, Two Iron Filter Presses, each 30 chambers, 1,000 x 1,000 mm, in first-class condition, latest construction by A. Dehne, nearly new, only used one year.—Apply, Technisch Bureau voor Chemische Industrie, Amsterdam.

FILTER PRESSES, in first-class condition, for Sale, with washing appliances, large sizes.—Address, "Filter Presses," Chemical Trade Journal Office, Manchester.

FILTER PRESSES for Sale.—Several Second-hand, in first-class order. Low prices to clear.—R. W. Andrews and Co., 24, Gray's Inn Road, London, W.C.

TWO HYDRAULIC PRESSES for SALE, in first-class condition. 10 in. ram; working pressure 4 tons.—Apply, Brotherton and Co., Ammonia Distillers, Leeds.

TO CHEMICAL WORKS and Others.—For SALE, large number of Wrought and Cast Iron TANKS up to 17 feet diameter, all lengths. Enquiries solicited.—Apply, Thos. W. Ward, Fitzalan Chambers, Sheffield.

WANTED to Purchase for abroad, MSS. Articles, practical recipes, and Trade secrets of every description in Oils, Colors, Paints, Varnishes, Soaps, Greases, Chemicals, etc., new methods working waste products, and any good articles connected with the allied trades.—Address, "C. S. J.," Chemical Trade Journal Office, Manchester.

GAS TAR and AMMONIACAL LIQUOR Wanted.—Apply, Josiah Hardman, Milton, Staffs.

SULPHURIC ACID FOR SALE (s.o.v. & a.o.v.) Made from Spent Oxide.—J. Hardman, Chemical Works, Milton, Staffs. Correspondence invited.

WOODEN VESSELS of every description, New or Second-hand; all shapes, dimensions, and capacities. We have on hand the largest stock in England, and firms requiring anything in this direction are kindly invited to write for particulars, etc., to Henry Roberts & Co., Vat and Back Makers, Bancroft Road, London, E.

TO BE SOLD, the **LANCASHIRE MANURE COMPANY'S WORKS** at Widnes with Machinery and 24,400 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street Liverpool.

TO be LET or SOLD, Chemical Works, situated between Marple and Romiley, on the Canal side, and until recently occupied by the Marple Chemical Co. Suitable for Manufacturing Glue, Size, Phosphates, Bleaching Liquor, or any secret processes. Good house attached.—Apply, A. E. Walker, 36, Bishop-street, Manchester, S.W.

PLATINUM Utensils, Scrap, Lamp Eads, etc. Best Prices given by Derby and Co. 11, Clerkenwell Road, London, E.C. N.B.—Platinum Sold

BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.

UNITED ALKALI COMP.'S

HYPO-SULPHITE OF SODA,

WALTHER FELD & CO.'S

PURE PRECIP. CARBONATE OF BARYTES 96/98

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

ALL SIZES
OF CARBOYS
KEPT

& KINDS
& HAMPERS
IN STOCK.



ALBUMENS, Pastes, Arabic Solution,
Vegetable and Animal Size, Gums,
GLUES, PREPARED PITHS, Precipitated Bone Phosphate, Neatsfoot Oil,
Greases, Manure Materials, &c.

W. KING, Benson St., LIVERPOOL.

ACTUAL MAKER OF
CHEMICAL & ASSAY BALANCES
and WEIGHTS,

From £1. 5s. to £15. Portable Balance, £5. **REPAIRS.**
Four years with Oertling.

C. T. PARTRIDGE, 1, New Charles St., City Rd London, E. C.

TUBES

IRON and STEEL (butt or lap welded),
and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 36 in. diameter.

COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

Manlove, Alliot & Co. Ltd.,
ENGINEERS,
NOTTINGHAM.

See Advertisement in first issue of this month.

BINDLEY & SON, Ltd.,
GLUE, GELATINE, and
Size Manufacturers.

Works: SMETHWICK, BIRMINGHAM.

Northern Office: 224, Effingham Road Sheffield.

HARPERS'
LIST.

PAGES 14 and 15

THREE WEEKS AGO.

MANGANESE,
Up to 95%.
FLUOR SPAR, finest 98.99 per cent white quality.
WILHELM MINNER, Arnstadt, Germany.

BRYAN CORCORAN, LTD.
MILLSTONE BUILDER,

WIRE WEAVER, MACHINE MANUFACTURER
AND GENERAL MILL FURNISHER.
Sole Maker of **MILBURN'S**
Patent Conoidal Stone Grinding Mills.
Especially suitable for certain materials, Wet or Dry.

Works and Warehouses:
Back Church Lane. Parcel Dept.: Basement of the Corn Exchange
31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers, Glasgow: West Campbell St.

Manchester: London: Wertheim

ACTUAL MAKER OF
Chemical & Assay Balances & Weights.

FROM

5s.

TO

£15.



PORTABLE
 BALANCE,

£5.

REPAIRS, &c.

J. PARTRIDGE, 1, New Charles St.,
 CITY ROAD, LONDON, E.C.

YEARS WITH OERTLING.)

FULLER'S
STEAMER.



Extraction of the Grease
 within an hour.

MATES FOR COMPLETE
 AMING AND GRINDING PLANT.
 NDING MACHINERY
 A DESCRIPTION OF MATERIAL.

J. FULLER, Jun.,
 at Charles Street, Birmingham

GLUE.

Manufacturers of all kinds of Fine, Scotch,
 Town, Medal, and other Glues, Gelatine, Size,
 Grease, Manure, Powdered Glues in all quali-
 ties, Starch, &c.

APPLY

The GROVE CHEMICAL CO., Ltd., Crown Works,
 APPELBY BRIDGE, WIGAN, LANC.

OLD PLATINUM



In any form Purchased
 for Cash.

Highest prices allowed by
ROBERT PRINGLE & CO
 Gold and Silver Refiners, &c.,
 40 & 42, Clerkenwell Road, E.C.
 Send for Price List.
 Photographic Residues reduced and
 Purchased.

SULPHURIC ACID.

JOHN NICHOLSON & SONS,
 LTD., Chemical Works, LEEDS, specially produce
 this ACID from SULPHUR, for making SULPHATE
 OF AMMONIA of high quality and good colour, Delivered
 in our own Railway Tank-Wagons or Carboys. Highest
 references and all particulars supplied on application.

THE PATENT **"ECLECTIC"** Disintegrator

For Grinding in ONE OPERATION, from COARSE to the
 FINEST POWDER (CHANGED AT WILL)

**MATERIALS OF THE MOST
 VARIED DESCRIPTION.**

The "ECLECTIC" IS ALSO SPECIALLY VALUABLE
 FOR Chemicals, and Bone Grinding, &c., &c.
 Our latest Circular (sent on application) gives over 500 capacities on the
 most varied materials from A to W.

The Grinding Machinery Co.
 16, Mark Lane, London, E.C.

Working extensively in the United Kingdom and Abroad.
 4 of our largest "Eclectic" Disintegrators have been supplied to Her Majesty's
 Government.

Miscellaneous.—Cont.

"UP-TO-DATE" RECIPES, NEW

INVENTIONS AND SPECIALITIES in
 Oils, Greases, Soaps, Paints, Varnishes, Enamels, Blackings,
 Blues, Polishes, etc., etc. practical working recipes with
 latest improved English, Continental and American
 methods, Prize and Gold Medal brands, Cheapened
 Substitutes, Utilization of Wastes and Refuse, etc.; any
 samples matched. Write for Lists.—Lewis Jameson & Co.,
 Balmoral-buildings, 91, Queen Victoria-street, London.

DISINTEGRATORS.—A New

Machine for £12., second to none, with 18 inch
 grinding chamber. Also Mortar Mill, 5ft. 6in. pan; for
 £28. A 10 x 6 New Stone Breaker, for £28.; larger
 sizes in proportion, or can be had on hire, with option
 of purchase.—Mason Bros., late S. Mason and Co.,
 Stone Breaking and Grinding Machine Makers, Brandon-
 street, Leicester.

AMMONIA, all qualities and
 strengths. Enquiries solicited.

BROTHERTON & Co., Birmingham, Leeds, and Wakefield

Advertisements which arrive too late for in-
 sertion on this page will be found on first page
 of Matter (opposite Leading Article).

MONTREAL POTASHES.

And PEARLASH.

We Import Direct, and offer from Stock or to Arrive

S. W. ROYSE & Co., Manchester.

MANURE & CEMENT PLANT

Grinding and Crushing Machinery.

VICKERS' MIXERS.

PRATCHITT BROTHERS, Carlisle.



Telegraph Address:—"VARLEY, ST. HELENS."

ESTABLISHED 1838.

JOHN VARLEY & CO.,

ENGINEERS,

WATERLOO FOUNDRY,

ST. HELENS.

SPECIALITIES:

SALTCAKE POTS. CAUSTIC POTS.

NITRIC ACID RETORTS. ACID EGGS.

PYRITES BURNER FRONTS.

HARPERS'

LIST.

PAGES 14 & 15

THREE WEEKS AGO.

WORKMEN'S HEALTH PROTECTING & SAFETY APPLIANCES. (Regd.) RESPIRATOR OR LUNG PRESERVER.

To Protect the LUNGS and THROAT from Dust, Poisonous Gases & other Impurities.



Preventing Disease & Prolonging Life.

Adapted for use in White Lead Works, Paint and Colour Works, Chemical and Pulverising Works, Tobacco and Snuff Factories, Iron Works, Smelting and Refining Works, Paper Mills, &c., &c.

Air is inhaled through a moist sponge and given out through an automatic valve.

Price 6/- each, Carriage Paid, or in quantities of not less than One dozen, 60/- net.

IMPROVED SAFETY SPECTACLES.



The most complete invention of its kind. Specially recommended for use in the Chemical Industries. Afford protection on all sides, without hindering the sight.

Price per doz., carriage paid, from 24/- net.

Full information on application.

ZIMMER & CO., 82, Mark Lane, London, E.C.

AGENTS WANTED.

The Square Frame Safety Carboy Hamper.



Breakage reduced to a Minimum.

68 Bottles making a Four-ton Load. Packed in two tiers in one Railway Wagon.

Saving 25 per cent. in carriage on Acids.

Large Quantities always in Stock.

The Carboy Hamper Co. Ltd.,
Nursery Works, RADCLIFFE.

Telegraphic Address:
"Nursery, Radcliffe."
Telephone No 307.

JOHN McCULLOCH,
CHEMICAL PLUMBER AND GENERAL CONTRACTOR,
LOSTOCK, near NORTHWICH,
CHESHIRE.

DYNAMITE PLANT.

A large experience in the erection of Explosive Plant throughout the country. Estimates given for the erection of Vitrified and Bleach Chambers, Glover and Gay-Lussac Towers, and every kind of Lead-Work connected with the Chemical Trade, also Excavating and every kind of Erecting.

**PRUSSIAN BLUE, PRUSSIATE of POTASH,
CYANIDE OF POTASSIUM,**

**SULPHATE, MURIATE, NITRATE, & LIQUID AMMONIA,
CARBOLIC ACID, NAPHTHALINE, CREOSOTE,**

MANUFACTURED BY

**THE GAS LIGHT & COKE CO.
LONDON.**

For Samples
and Prices apply—

W. G. BLAGDEN, 4, Fenchurch Avenue, LONDON.

LEDDON PATENTS

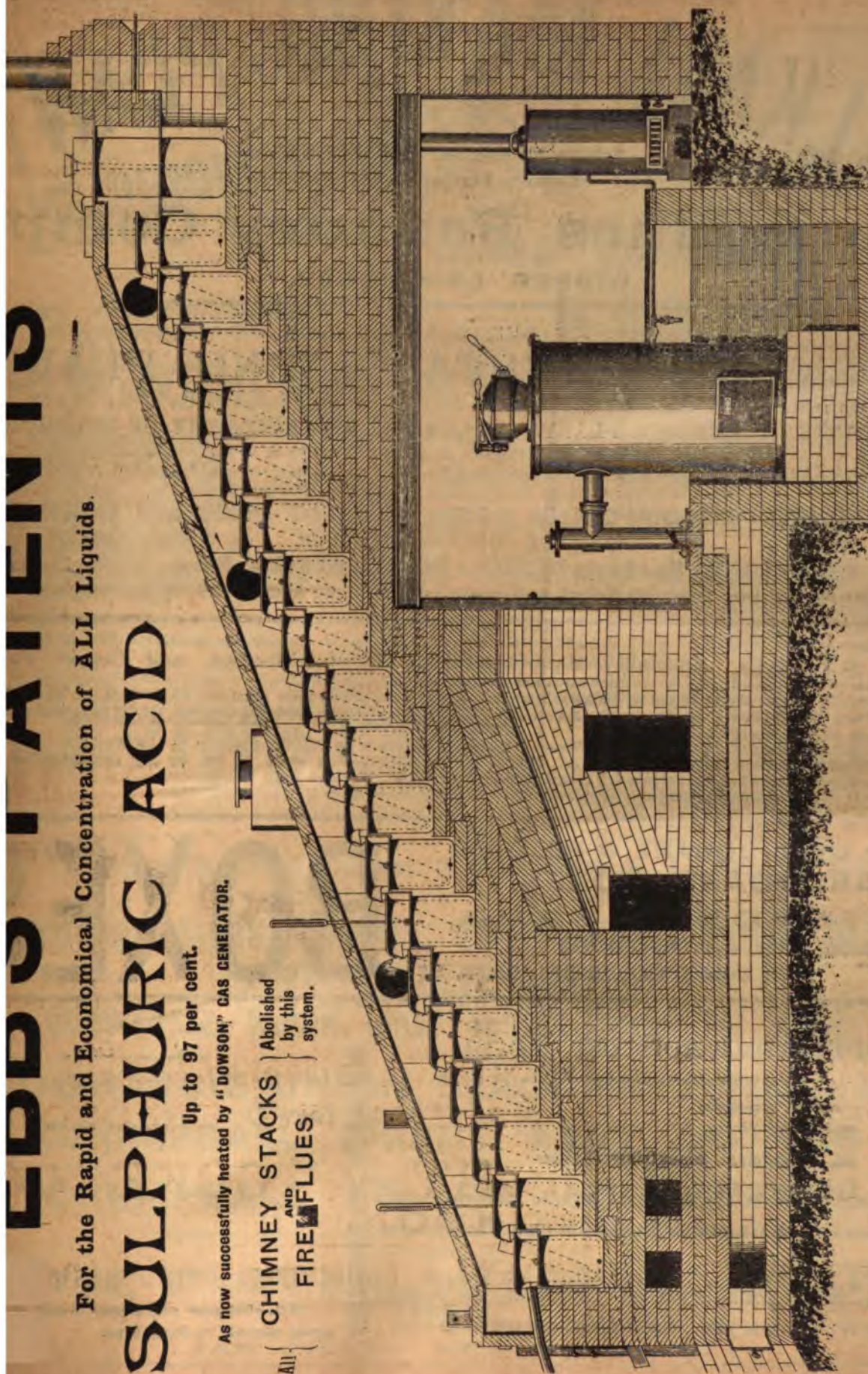
For the Rapid and Economical Concentration of ALL Liquids.

SULPHURIC ACID

Up to 97 per cent.

As now successfully heated by "DOWSON" GAS GENERATOR.

All { CHIMNEY STACKS AND FIRE-FLUES } Abolished by this system.



T. G. WEBB (Inventor and Patentee),
Queen's Chambers, 7, Market Street, **MANCHESTER.**

Telegrams "VITRIOL, MANCHESTER."

ALKALI MAKING PLANT

Telegraphic Address: FOUNDRY, WIDNES.

Telephone Number: 9, WIDNES.

The Widnes Foundry Company

WIDNES, LANCASHIRE.

MAKERS OF EVERY DESCRIPTION OF

CHEMICAL MANUFACTURING PLANT

On the most approved Plans, and as supplied to the Principal Alkali Makers in the United Kingdom.

SULPHATE OF AMMONIA PLANT. PLANT FOR THE RECOVERY OF SULPHUR.

PYRITES BURNER FRONTS.

Saltcake Plant complete for the Hargreaves and Robinson's Patent Process; Evaporating Pans of the newest designs for Caustic Manufacturers; Castings of every description for the Chemical Trade.

SPECIALITIES.—DECOMPOSING PANS, CAUSTIC POTS, and BOAT PANS
OF THE BEST MANUFACTURE.

Authorised Makers of Complete Plant for the RECOVERY of SULPHUR under Chance's Patents, including Carbonators, Gas Holders, Lime Kilns, Gas Meters, and Ironwork for the Claus Kilns. Prices on Application.

ESTABLISHED 1855.

J. F. STEAD, Speciality Manufacturer of Linen, Woollen, and Cotton Fabrics,
Skinner Lane Works, LEEDS, England.

Telegraphic Address:—"TEXTILE, LEEDS."

Begs respectfully to call the attention of Chemical Manufacturers, Tar Distillers, Seed Crushers, Sugar Refiners, Yeast, White Lead and Paint Manufacturers, to his superior makes of **FILTERING, PRESS, and MACHINE CLOTHS**, which can be any Width or Tubular Form.

For Liquors containing Acid, our Patent Woven Cloth—pattern 76—is by far the Cheapest in the World.

Also Manufacturer of Patent **EYELETTED WEBBING** for Elevating all kinds of Wet or Dry Substances—Buckets can be immediately attached or detached; Patent **BELTING** for Machinery and Main Driving.

Samples and Prices on Application.—Contractor to H.M. Government.

**ROUND, OVAL, SQUARE, & FOLDING
CARDBOARD BOXES.**

ROBINSON & SONS,

WHEAT BRIDGE MILLS, CHESTERFIELD, and

55, FANN STREET, LONDON, E.C.

BOXES

Subscription Order Form.

Telegrams:—"EXPERT," Manchester.

To **DAVIS BROS.,**

32, Blackfriars Street, Manchester.

Please send to the address in the margin, until countermanded, THE CHEMICAL TRADE JOURNAL, commencing with No.

Enclosed is postal order for 12/6, being the prepaid subscription for the first year, which please acknowledge.

Date,

(Signed)

N.B.—Cheques and Money Orders should be made payable to Davis Bros.

BROOKE, SIMPSON, & SPILLER LIMITED,

ATLAS WORKS,

HACKNEY WICK,

LONDON, E.

THE ORIGINAL MAKERS OF ANILINE DYES.

MANUFACTURERS

OF THE

LARGEST ASSORTMENT IN THE

WORLD.

PRICES ON APPLICATION

The Clayton Aniline Co., Limited, CLAYTON,

And 26, COOPER STREET, MANCHESTER.

GOLD MEDAL

AT THE

PARIS UNIVERSAL EXHIBITION, 1889.

ANILINE OIL and ANILINE SALT

For DYEING and PRINTING.



Mirbane, Binitrobenzole, Binitrotoluole, Solvent Naphtha, Patent Odourless Naphtha.
ANILINE DYES: Patented Specialities.—Carnotine, Aurotine, Clayton Yellow, Cloth Red, Cloth Scarlet, Oxyphenine (the fastest Yellow to light known), Cotton Brown, etc.

LEVINSTEIN, Limited.

**WORKS: CRUMPSALL VALE,
OFFICE: MINSHULL STREET,**

Telephone 272.

MANCHESTER.

Telegrams: "LEVINSTEIN, MANCHESTER."

The Largest Naphtol Colour Manufacturers in Great Britain.

SOLE MAKERS IN THE UNITED KINGDOM OF

**BENZOPURPURINES, CONGOS, CHRYSAMINES, BENZO BLUES,
BENZO AZURINES, ETC., ETC.**

COOMASSIE BLACK (Fast Milling Black for Wool).

(PATENTED.)

COOMASSIE UNION BLACK (Cotton and Wool in One Bath)

(PATENTED.)

CRUMPSALL DIRECT FAST BROWNS

(PATENTED.)

CRUMPSALL YELLOW AND ORANGE

(PATENTED.)

MANUFACTURERS OF

**NAPHTALINE, NITRONAPHTALINE, DINITRO-NAPHTALINE, NAPHTYLAMINE,
NAPHTOL,**

AND THEIR SULPHO ACIDS.

JOHN RILEY & SONS, Alkali Makers.



Sulphuric Acid and Hydrochloric Acid, made specially for all purposes. Caustic Soda White 60, 70, & 75%. Refined Soda Ash. Roll & Flowers of Sulphur, Sulphate of Copper. High Strength. IRON SALTS for SEWAGE &c. PRECIPITATION.

Chemicals Specially Packed for Shipment.

Yorkshire Branch: 21, Swan-arcade, Bradford
Works: Hapton, nr. Accrington, Lancs. Warehouse: 2, Cooper St., M'ler.

ACID-PROOF BRICKS
FOR
CHEMICAL WORKS. ETC
SPECIALLY PREPARED

SPECIALITIES TO ORDER.

MANUFACTURER
JOSEPH HAMBLET
WESTBROMWICH.

SPECIALITIES:-

Salicylic Acid	ALKALI	Glycerine	Amidol	Glycin
Acetic Acid	BLEACH	Oleins	Metol	
Tartaric Acid	SALTCAKE	Castor Oil		
Phosphoric Acid	BRIMSTONE	Camphor		
Carbolic Acid	POTASHES	Eto.		
Antimony Salts	SUL. COPPER			
Mercurials	OXALIC ACID			
Lithia Carb.	Eto.			
Glucose				
Eto.				

Importers - Commission Merchants - EXPORTERS.
"FUERST, LONDON."

Telegrams: "FUERST, LONDON."

LONDON: 17, Philpot Lane, E.C.

And all HEAVY OR FINE CHEMICALS, Pharmaceutical Products, Photographic Developers, Drysalteries and Drugs, also OILS and PRODUCE.

SAMPLES AND PRICES ON APPLICATION.

FREDK. JACKSON & CO.

(Late Mottershead & Co.)

14, CROSS STREET,

MANCHESTER.

Importers, Manufacturers, and Dealers in

CHEMICAL & PHYSICAL APPARATUS

OF EVERY DESCRIPTION.

Fine Chemicals, Volumetric Solutions, Plain & Stoppered Bottles.

AND EVERY LABORATORY REQUIREMENT.

Clear Glass Sample Bottles.

Illustrated Price Lists Free.

BROADBENT'S HYDRO-EXTRACTOR,

Direct Steam Driven. No Shafts or Belting Required. Suspended on Links and Requiring no Foundations.

OVER
2,000
AT
WORK.



SPECIALLY
ADAPTED
FOR
CHEMICAL
WORKS.

SEND FOR CATALOGUE.

THOMAS BROADBENT & SONS, LTD.,

CENTRAL IRONWORKS, CHAPEL HILL, HUDDERSFIELD, ENGLAND.

Telegrams: "Broadbent, Huddersfield."

LONDON ADDRESS: SUFFOLK HOUSE, LAURENCE POUNTNEY HILL, E.C.

